The Oil and Gas Journal

PUBLISHED WEEKLY BY THE PETROLEUM PUBLISHING COMPANY AT TULSA, OKLAHOMA

HOME OFFICE, 211 S. CHEYENNE, TULSA
PHONE 3-6291

P. C. LAUINGER, *President* — *Editor*, C. O. WILLSON

LYNN M. NICHOLS, *Managing Editor* — W. V. HOWARD, *Field Operations*

W. T. ZIEGENHAIN, *Refinery Editor* — W. L. NELSON, *Metallurgical Editor*

Associate Editors

DAL DALRYMPLE — T. P. SANDERS

HARRY F. SIMONS — PAUL REED

D. H. STORMONT — H. STANLEY NORMAN

District Editors

Houston, *617 Caroline St.*
NEIL WILLIAMS — F. L. SINGLETON

Fort Worth, *Petroleum Bldg.*
R. MARNE SANFORD

Shreveport, *City Bank Bldg.*
GEORGE WEBER

Los Angeles, *Union Oil Bldg.*
L. P. STOCKMAN

Washington, *Natl. Press Bldg.*
HENRY D. RALPH

Saginaw, *News Bldg.*
O. C. PRESSPRICH

Denver, *State Office Bldg.*
TOLBERT R. INGRAM

New York, *415 Lexington Ave.*
J. P. O'DONNELL

Oil City, *Derrick Bldg.*
A. C. MacINTYRE

Chatham, Ontario, *35 Stanley Ave.*
VICTOR LAURISTON

S. H. ROURKE, *Business Manager*

M. L. DURHAM, *Circulation Manager*

Advertising

E. KLAPPENBACH, *Vice President*

New York, *415 Lexington Ave.*
LLOYD CAIN

Cleveland, *Leader Bldg.*
HOWARD MARKT

Chicago, *105 W. Madison*
C. R. FARMER
KENNETH J. LANGLEY

Tulsa, *211 S. Cheyenne Ave.*
JAMES D. HUGHES

Houston, *617 Caroline St.*
WAYNE RIVES

Los Angeles, *1406 S. Grand Ave.*
J. HOWARD TINKHAM

Twickenham (Middlesex) England—*72 Cole Park Road*
A. J. CHAMBERS

Table of Contents

Vol. 39, No. 23 — October 17, 1940

News Developments

Trends: Vitality of Market Turning Upward as Gulf Sales Mount 19
U. S. Tanker Fleet in Ascendancy ..... *J. P. O'Donnell* 20
Sparks From the News 22
Oil Shortage Dictates Axis' Drive Toward Southeast ..... *J. P. O'Donnell* 23
Future Oil Possibilities of Newhall-Castaic District ..... *David Wosk* 24
Texan Charges Ills to Special Allowables ..... *H. Stanley Norman* 27
News From the State Capitals 28
Editorial: Forewarned, Forearmed 29
Southwest-to-Milwaukee Gas Lines Considered by F.P.C. 30
Humble Requests Higher Quotas for Four Gulf Coast Fields 30
New Wage-Hour Law Definitions Remove Some of Complaints ..... *Henry D. Ralph* 33
Gasoline and Oil Economy Stressed in 1941 Cars 34
Deaths 34
International News 37
Refinery Expansion 39
Natural Gas News 39
Natural Gasoline News 39
Programs and Meetings 40
Service on Active Fields: Falls City Pool, Nebraska 43
Pipe-Line Activity 69
Adapting Rotary Rigs to Use of Internal-Combustion Engines ..... *T. P. Sanders* 73

Engineering—Operating

Field Application of Tool Joints ..... *Harry F. Simons* 46
Liquefaction, Storage and Regasification of Natural Gas ..... *J. A. Clark and R. W. Miller* 48
Safety: Large Bellholes Aid Pipe-Line Welder 52
Economic Factors in Catalytic Cracking ..... *Dr. J. S. Carey and H. W. Ortendahl* 55
Chemicals for Treatment of Drilling Fluids ..... *C. F. Bonnet and B. N. Howell* 58
Movable Cabinet and Trailer Expedite Handling Samples 64
Operating Ideas 65
Progress in Metals ..... *W. L. Nelson* 66

Field Operations

Field Developments 83
California ..... *L. P. Stockman* 84
North Central Texas *R. Marne Sanford* 88
Permian Basin,
Panhandle ..... *R. Marne Sanford* 91
N. Louisiana, Arkansas *George Weber* 92
Oklahoma ..... *Dal Dalrymple* 94
Kansas ..... *Dal Dalrymple* 96
Forest City Basin 96
Illinois 98
Michigan ..... *Otto C. Pressprich* 100
Louisiana Gulf Coast *F. L. Singleton* 101
Appalachian Fields 102
Rocky Mountain Area ..... *T. R. Ingram* 104
Among Drilling Contractors 106
Southwest Texas ..... *F. L. Singleton* 108
Texas Gulf Coast ..... *Neil Williams* 109
Eastern Texas ..... *R. Marne Sanford* 111
Indiana, Ohio, Kentucky 112
Mississippi ..... *George Weber* 114
Canada ..... *Victor Lauriston* 115

Markets and Prices

Group 3 Market ..... *H. Stanley Norman* 120
New York Market ..... *J. P. O'Donnell* 121
A.P.I. Refinery Report 121
Tank-Wagon Market 122
Refinery Prices 123

Additional Features

Personal Paragraphs 118
Equipment News 124
Classified Advertising 126-127
Advertisers' Index 128

SUBSCRIPTIONS: United States, 1 year, $6.00; 6 months, $3.00. Elsewhere, 1 year, $7.00; 6 months, $3.50. SINGLE COPIES: 20 cents each. Back copies, when over a year old, 50 cents. CHANGES OF ADDRESS reaching the Tulsa office of the Journal by Saturday take effect with the following issue.

Copyright, 1940, by The Petroleum Publishing Company

The BAKER ROTARY WALL SCRAPER...

combines the following features, which are vitally essential to efficient, economical operation:

★ **Maximum expansion range on cutter blades (from 4" to 36" expansion using only six bodies)**

★ **Blades that contact side of the hole a sufficient distance to give good bearing surface on formation (minimizes possibility of "corkscrewing" hole; assures an even cut on all sides of the hole and permits faster downward feeding with more hole per hour)**

★ **Full circulating force directed on cutting blades (assures cuttings being removed quickly and blades being cooled and well lubricated)**

and the BAKER WALL SCRAPER is really *TWO TOOLS IN ONE*

WALL SCRAPER 2 TOOLS IN WALL SAMPLER

as, by merely substituting Sampler Blades for the regular Scraper Blades converts this tool into a Baker Wall Sampler, an efficient device that takes actual cores from the side wall of any uncased hole.

Important Applications

Enlarging Holes for Casing

Cleaning Up Oil Sands

Setting Liners

Setting Cement Plugs

Bottlenecking for Cement Jobs

Removing Sections of Drillable Pipe

Water Shut-Off Tests

Sidetracking

Straightening Holes

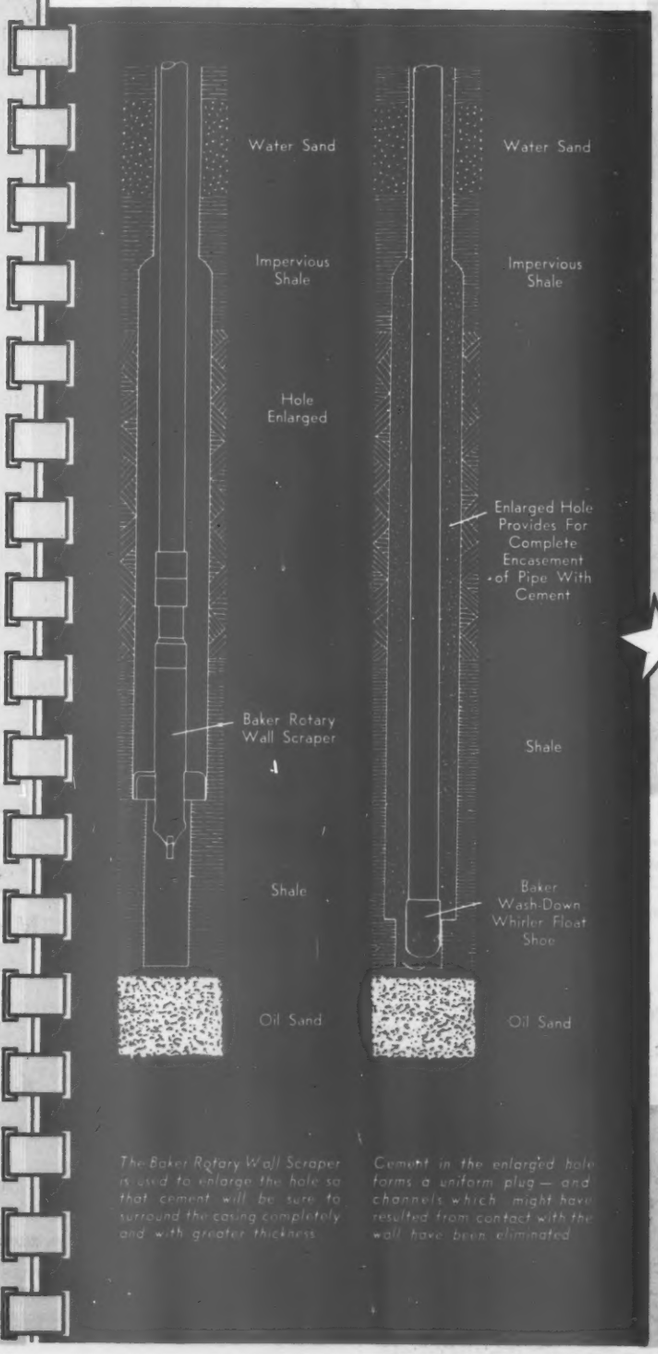
Fishing Jobs

Enlarging Holes for Gravel Packing

Side Wall Sampling (by converting Scraper into Baker Wall Sampler)

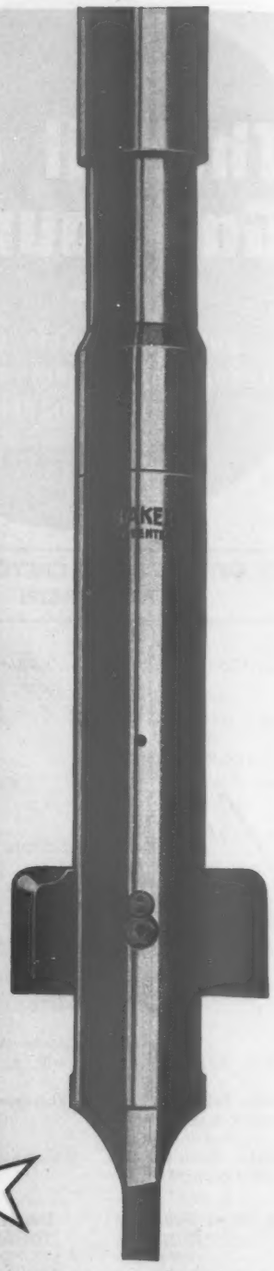
BOTTLENECKING THE HOLE FOR BETTER CEMENTING

One of 12 Practical Field Applications For The BAKER ROTARY WALL SCRAPER



The Baker Rotary Wall Scraper is used to enlarge the hole so that cement will be sure to surround the casing completely and with greater thickness.

Cement in the enlarged hole forms a uniform plug — and channels which might have resulted from contact with the wall have been eliminated.



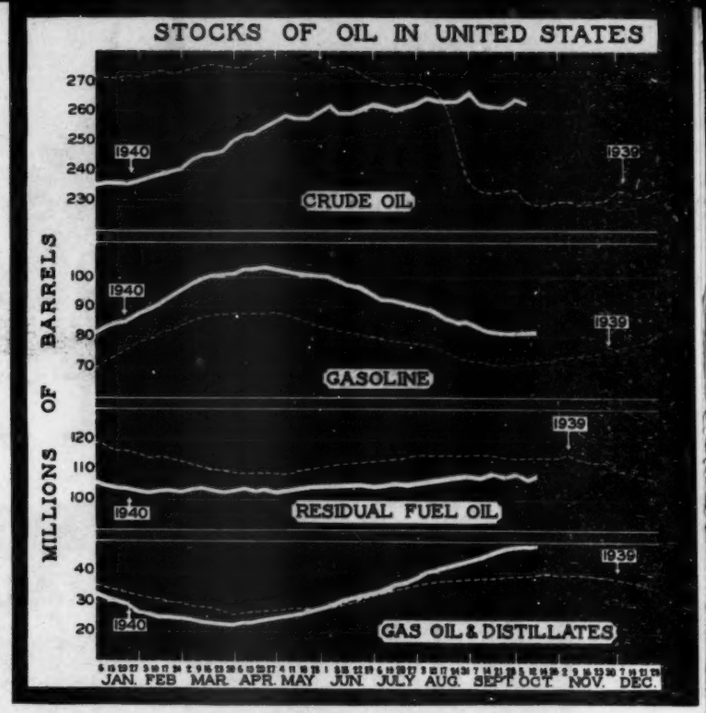
Send for Baker Broadcast No. 19

BAKER ROTARY WALL SCRAPER

BAKER OIL TOOLS, INC.
P. O. Box 127, Vernon Station
LOS ANGELES, CALIFORNIA
HOUSTON, TEXAS
NEW YORK, N. Y.

Trends

Vitality of Market Turning Upward as Gulf Sales Mount



VITALITY of the refined market is slowly returning. Strength is being drawn mostly from fuel-oil products which are in active demand both in refining and consuming centers. However, open market sales of Gulf Coast gasoline totaling approximately 1,500,000 bbl. so far this month, all scheduled for coastwise movement before November, is the source of greatest optimism. Relief from the pressure that has weighted the Gulf Coast refiners for several months extends indirectly far back into the nerve system of the industry.

Motor-fuel buying on the Gulf created a spurt in demand for natural gasoline which has permitted prices to move forward 1 to 1.25 cents in the manufacturing areas. Sensitive condition of local crude-oil markets has been assuaged for the present.

The tempo of increase in distillate fuel-oil stocks has been slowed down to a crawl. Just a year ago the annual draft on storage of light fuel oils set in and proceeded at a pace beyond expectations of the industry. The rate at which the industry was called upon to manufacture distillate fuels last year in the period now at hand caused the record increment of gasoline.

Economists in the industry have pointed a way out from the vicious circle in which refiners found themselves last year. Stocks of light fuels have been built to the record high of more than 48,000,000 bbl. in the off-consuming season, approximately 10,000,000 bbl. higher than a year ago. Abundant inventories of distillate fuel now on hand, economists assert, will give the industry the latitude in operating schedules entirely lacking last year. Therefore, there is no logical reason why motor-fuel stocks should reach the unwieldy proportions which caused the past summer to be profitless for many.

CRUDE PRODUCTION *3,636,141 bbl. daily average—up 147,736 bbl. One year ago 3,685,549 bbl.*

CRUDE STOCKS *263,551,000 bbl. as of October 5—down 58,000 bbl. One year ago 231,564,000 bbl.*

GASOLINE STOCKS *81,927,000 bbl. as of October 12—down 329,000 bbl. One year ago 71,893,000 bbl.*

RESIDUAL FUEL-OIL STOCKS *108,449,000 bbl. as of October 12—up 485,000 bbl. One year ago 114,087,000 bbl.*

GAS OIL AND DISTILLATES *48,743,000 bbl. as of October 12—up 556,000 bbl. One year ago 38,894,000 bbl.*

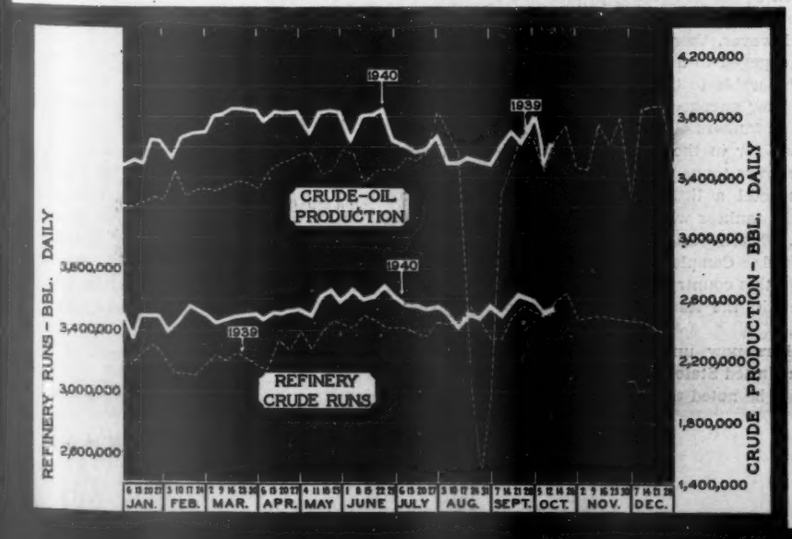
REFINERY RUNS *3,555,000 bbl. daily week ended October 12—same as last week. One year ago 3,580,000 bbl.*

DAILY AVERAGE PRODUCTION FOR WEEK

	Oct. 12, 1940	Bur. Mines Oct. est. of demand	October state allowables	Oct. 5, 1940
Arkansas	71,410	70,700	68,743	71,465
California	625,250	583,200	571,000	600,250
Eastern states	106,200	95,700	.....	105,400
Illinois	351,653	405,200	.....	357,767
Kansas	197,100	178,700	188,450	191,150
Louisiana	284,445	274,200	269,631	285,275
North Louisiana	*65,895*	.....	.....	*64,725*
Louisiana Gulf Coast	*218,550*	.....	.....	*220,550*
Michigan	47,781	53,900	.....	50,153
Mississippi	16,057	9,000	.....	19,225
New Mexico	99,500	104,500	104,500	99,440
Oklahoma	385,775	403,500	390,000	416,100
Rocky mountain states	102,670	96,800	.....	103,230
Texas	1,348,300	1,305,200	1,407,250	1,188,950
East Texas	*374,950*	.....	.....	*298,700*
West Texas	*231,100*	.....	.....	*208,600*
North Central Texas	*140,550*	.....	.....	*149,450*
East Central Texas	*74,550*	.....	.....	*63,500*
Texas Panhandle	*81,150*	.....	.....	*81,150*
Gulf Coast Texas	*338,450*	.....	.....	*283,500*
Southwest Texas	*107,550*	.....	.....	*104,050*
United States	3,636,141	3,580,600	.....	3,488,405

Disclosure of the Independent Petroleum Association program at Dallas this week may exert important influence on the industry over the next few months. The support given the program by the industry and the vigor with which its recommendations are prosecuted will be the determining factor. The I.P.A.A. is on record favoring crude-oil production of not more than 3,500,000 bbl. daily for the last quarter of this year. The recommendation was made in August but, with exception of the week ended October 5, the country has consistently exceeded the ceiling figure.

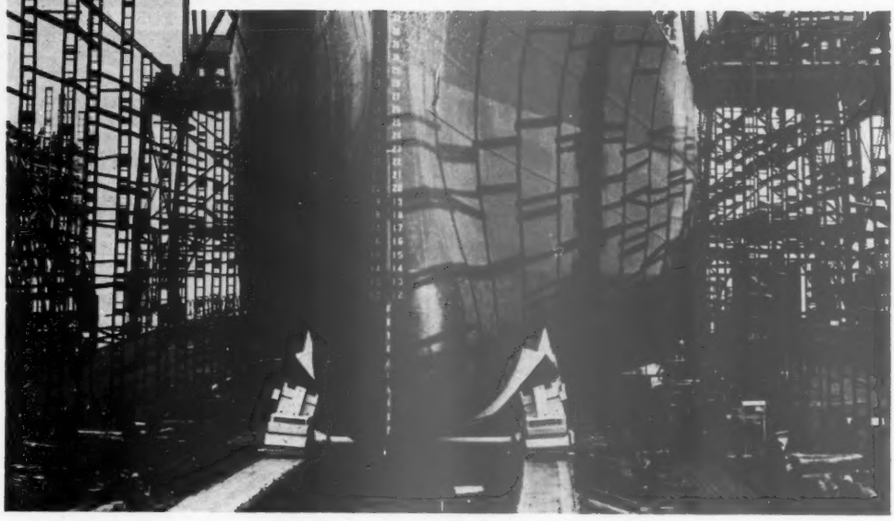
Despite the increase of 147,736 bbl. in daily average production for the week ended October 12, the industry still can stay within Bureau of Mines recommendations for the month. Through the first 2 weeks of the current month, production has averaged 3,562,273 bbl. daily, leaving a margin of almost 30,000 bbl. under the estimated demand for 3,580,600 bbl. daily.



U. S. Tanker Fleet in Ascendancy

By J. P. O'DONNELL

Great Britain's losses, plus an aggressive tanker-building program in the United States, bid fair to give this country the world's largest tanker fleet, thus depriving the United Kingdom of its premier rating.



Typical of the new tankers being built in this country is this 583-ft. vessel which has an oil-carrying capacity of over 6,000,000 gal. and a speed of 18 knots

DESPITE the transfer of 28 vessels aggregating more than 300,000 deadweight tons to alien registry during the year ended September 1, 1940, the United States bids fair to eclipse the British Empire as the nation with the largest fleet of oil tankers sailing under one flag. Prior to the war, Great Britain had the world's largest fleet, both in the number of vessels and in tonnage, but losses during the war and an active construction program in this country threaten to deprive the United Kingdom of its premier rating.

According to Lloyd's last report on ship registration—none has been issued since the war began—the United States had a fleet of 421 vessels aggregating 2,800,000 gross tons on July 1, 1939. Since then 17 tankers of an estimated 170,000 gross tons have been launched but 28 tankers having a deadweight tonnage of 301,073 tons and a gross tonnage approximately two-thirds of that have been transferred to other flags since the beginning of the war. Had it not been for the fact that several of the tankers built here were taken over by the U. S. Navy for use as fleet oilers, the United States fleet in September of this year would have consisted of 410 vessels with an approximate gross tonnage of 2,770,000 tons.

Great Britain's prewar tanker fleet consisted of 435 vessels, aggregating 2,919,566 gross tons. Her known losses in the first year of the war comprised 31 vessels with a total deadweight tonnage of 359,200 tons which were offset to a minor degree by the acquisition of three United States tankers with a combined deadweight tonnage of 16,625 tons. Had Great Britain made no other additions to her fleet during this period and estimating the gross tonnage of the vessels lost or transferred at two-thirds of their deadweight tonnage, it is calculated that she would have had a fleet of 407 vessels aggregating 2,690,000 tons as of September 1, 1940.

A resume of the tanker losses in the first year of the war, showing the number and deadweight tonnage of the ships lost by each nation, follows. Only known losses are included in this list which accounts for its relative conservativeness.

Registry—	Number of vessels	Tonnage (deadweight)
Great Britain	31	359,200
Norway	7	73,591
France	3	43,690
Germany	5	53,955
Netherlands	4	32,245
Sweden	3	24,920
Denmark	1	16,400
Panama	4	40,462
Italy	1	12,200
Total	59	656,663

Accurate Comparison Impossible

Since available information is naturally incomplete at this time it is impossible to make an accurate comparison of the United States and Great Britain fleets, but indications are that they are near a parity. However, there is little likelihood that England is engaged in a tanker-building program that is comparable to the one in which the United States is now engaged. On October 1 this year there were 62 tankers either under construction or contracted for in the United States, having an aggregate gross tonnage of 585,510 tons. In contrast to this total a little over a year ago there were only 13 tankers with a combined gross tonnage of 125,418 tons under construction in United States yards. Completion of the current program will give this country the world's largest tanker fleet both in the number of vessels and their tonnage.

A list of tankers now under construction or contracted for in United States ship yards is given in Table 1. It will be noted that 28 of the 62 vessels are of 10,000 gross tons or larger. They are the largest ships under construction in this country other than naval vessels. Only one larger merchant ship, the United States Lines' new liner, "America," of 27,000 gross tons has been completed in recent years. Tankers building here at present include 47 steam-driven vessels with a total of 348,600 hp., 12 diesel vessels of 64,800 hp. and two turbo-electric vessels grossing 10,000 hp. The cost of the average tanker, according to Marine Engineering & Shipping Review, ranges from $2,000,000 for one 5,200-gross-ton tanker on the accompanying list to $3,129,667 for 11,500-gross-ton vessels, including national-defense features. The present tanker program will entail an expenditure of an estimated $150,000,000.

Incorporate National-Defense Features

A number of these vessels will incorporate national-defense features, installed at the instigation and expense of the U. S. Maritime Commission. These features include high-speed, structural-steel gun emplacements and U. S. Navy navigational instruments. The first of the high-speed tankers purchased from a private concern by the Maritime Commission for transfer to the Navy was the Cimarron which was built for the Standard Oil Co. of New Jersey. This tanker was launched January 7, 1939, and had a speed of 18 knots. A similar vessel recently launched was the Esso Albany, also a Standard Oil Co. of New Jersey vessel. It was built at a cost of $3,129,667, of which $880,250 was paid by the Maritime Commission for the inclusion of national-defense features. The Albany has a speed of 18 knots, a deadweight capacity of 18,000 tons and a capacity of more than 6,000,000 gal.

There are certain obvious advantages in the larger, high-speed tankers, most obvious of which is the saving in the time of transport. The recently launched Ohio, the first of four steam-driven 9,000-hp., 13,300-ton deadweight capacity tankers ordered by the Texas Co., averaged 17.21 knots and hit a top speed of 19.23 knots in a trial run. It averaged 17 knots in a voyage from Bayonne, N. J., to Port Arthur, Tex., making the 1,882 miles in 4 days and 12 hours. Its designed speed is 16 knots.

While there are some obvious advantages in

building high-speed tankers, their commercial service operating cost may be higher than that of the slower vessels. For example, there are two 9,800-gross-ton, 487-ft. by 6-in. by 68-ft. by 37-ft. tankers under construction or contracted for at one United States ship yard with a designed speed of 16½ knots. These are steam driven and require 12,000 hp. to develop their rated speed. Against this, three other tankers of duplicate dimensions but with a designed speed of only 13 knots require but 4,000 hp. to develop their rated speed. The slower tankers therefore require less fuel with a resultant gain in useful cargo space. Hence it is evident that the increased speed, which makes these vessels suitable for use as Navy fleet oilers, is attained only at a sacrifice.

Larger Pump Capacities

The Ohio has a capacity of 107,000 bbl. and is equipped with four lubricating-oil cargo pumps with a capacity of 1,000 bbl. an hour and four main cargo pumps with a capacity of 1,400 g.p.m. or 2,000 bbl. an hour. The newer tankers have sufficient pump capacity to enable them to unload in approximately 12 hours. All are oil burning, the steam vessels using oil-fired water-tube boilers.

From January 1, 1940, to September 1 there were nine tankers launched in United States yards. This is approximately the same rate as in 1939 when a total of 12 tankers with a combined gross tonnage of 127,582 tons were launched. A record of tanker construction in this country for the past 10 years, according to the American Bureau of Shipping, follows:

Year	Number
1939	12
1938	17
1937	14
1936	8
1935	2
1934	0
1933	0
1932	0
1931	6
1930	10
Total	69

Until the war began, the United States fleet was constantly expanding. However, with the inauguration of hostilities and the establishment of neutrality zones barring United States flag ships from belligerent waters, this expansion was halted by the transfer of 28 United States tankers to alien registry. Virtually all of these transfers were comparatively small vessels of from 4,000 to 7,000 gross tons and most of them were 20 years old or more, one of the smallest having been built in 1904. A list of the transfers during the first year of the war, showing the registry to which they were transferred and the number and deadweight tonnage of the vessels, follows:

Registry—	Number of vessels	Deadweight tonnage
British	3	16,625
Panamanian	21	258,717
Venezuelan	2	18,050
Peruvian	1	1,335
Brazilian	1	6,346
Total	28	301,073

TABLE 2—AVERAGE MARKET FREIGHT RATES, U. S. GULF PORTS TO NEW YORK

(Dirty cargoes)

Month—	Per barrel					
	1935	1936	1937	1938	1939	1940
Jan.	$.204	$.313	$.390	$.366	$.204	$.560
Feb.	.207	.325	.420	.297	.165	.560
March	.187	.270	.440	.180	.155	.608
April	.166	.213	.490	.158	.195	.555
May	.160	.200	.510	.150	.248	.648
June	.160	.184	.556	.145	.185	.395
July	.156	.160	.462	.143	.158	.213
August	.150	.153	.342	.164	.156	.192
Sept.	.145	.212	.317	.165	.249	...
Oct.	.188	.293	.300	.170	.332	...
Nov.	.300	.327	.260	.215	.380	...
Dec.	.302	.350	.280	.245	.532	...

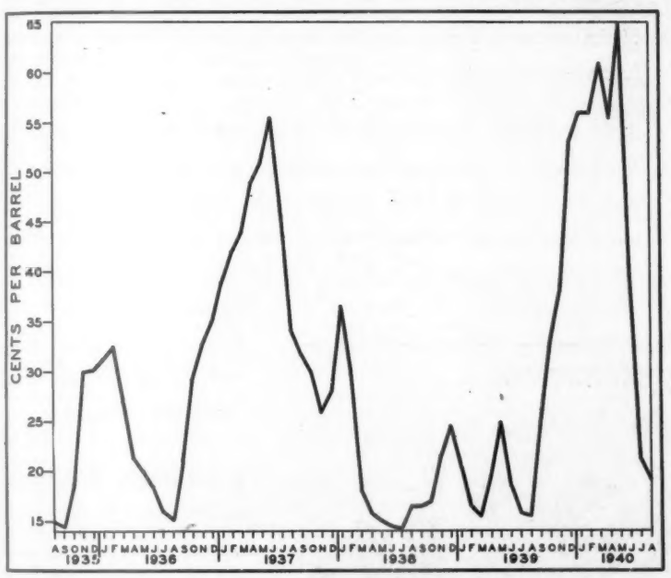


Chart showing average monthly freight rates — U. S. Gulf ports/New York, 1935-1940, dirty cargoes. (Fig. 1)

The place of the tanker in the oil industry is obviously one of the greatest importance. Its role in the domestic oil picture is an example. During the first half of this year 220,882,000 bbl. of crude oil and refined products were moved by tanker from California and Gulf Coast ports to the East Coast. Since the nation's crude-oil production in the same period was 687,901,000 bbl., the relative importance of the tanker in the transportation of petroleum is evident.

Importance of Tanker Rates

Since tankers themselves have assumed such importance, tanker rates are equally important in determining refined products prices in the East. This is particularly true of Gulf to north-of-Hatteras shipments. In the first 6 months of this year 85,170,000 bbl. of crude oil and 132,768,000 bbl. of refined products were shipped from the Gulf to East Coast ports. The latter consisted of 56,531,000 bbl. of gasoline, 13,565,000 bbl. of kerosene, 23,365,000 bbl. of gas oil, etc., 35,332,000 bbl. of residual fuel oil, 3,727,000 bbl. of lubricants and 248,000 bbl. of miscellaneous products. With such a volume moving in this one route it is evident why the transportation rates would affect market prices.

This factor assumed especial significance during the past spring when a late fuel-oil demand overlapped the early gasoline-consuming season and rates from the Gulf Coast reached such levels that a congressional investigation threatened. In May tanker rates (dirty cargoes) in the Gulf to New York trade reached a high monthly average of 64.8 cents per barrel. In the 6 months ended with May 1940 they averaged more than 58 cents which contrasted with an average of approximately 25 cents for the 1935-9 period. Since the peak reached last May, rates have declined swiftly and last month the average was but 19.2 cents per barrel. In spite of this marked decline, however, this rate was still well above the normal August figure, being exceeded only in 1937 when tanker rates were maintained at a good level throughout the first 10 months of the year.

Average market freight rates on dirty cargoes from Gulf ports to New York for the past 6 years are shown in Table 2. A more graphic picture of the degree of fluctuation in tanker rates is shown in Fig. 1.

TABLE 1—TANKERS UNDER CONSTRUCTION OR CONTRACTED FOR IN UNITED STATES YARDS

Owner—	Builder	No. of vessels	Gross tons	Speed (knots)	Power type	Horse-power	Size		
							Length	Beam	Depth
Petroleum Shipping Co.	Bethlehem Steel Co.	3	9,800	13	Steam	4,000	487'6"	68'	37'
Sinclair Refining Co.	Bethlehem Steel Co.	4	7,600	14	Steam	4,000	450'	63'6"	34'6"
Sinclair Refining Co.	Bethlehem Steel Co.	2	10,500	14	Steam	6,000	505'	72'	38'
Standard Oil Co. of New Jersey	Bethlehem Steel Co.	1	11,500	18	Steam	13,500	525'	75'	39'
Socony-Vacuum Oil Co.	Bethlehem Steel Co.	4	9,800	16½	Steam	12,000	487'6"	68'	37'
Union Oil Co.	Bethlehem Steel Co.	1	8,000	13	Steam	3,500	442'	63'	34'10"
Socony-Vacuum Oil Co.	Bethlehem Steel Co.	2	9,800	16½	Steam	12,000	487'6"	68'	37'
Union Oil Co.	Bethlehem Steel Co.	2	8,000	13	Steam	3,500	442'	64'	34'10"
Richfield Oil Co.	Bethlehem Steel Co.	1	8,000	13	Steam	3,500	442'	64'	34'10"
Panama Transport Co.	Bethlehem Steel Co.	2	9,800	15½	Steam	7,000	487'6"	68'	37'
Continental Oil Co.	Bethlehem Steel Co.	1	8,000	13	Steam	3,500	442'	64'	34'10"
Tide Water Associated Oil Co.	Charleston S. B. & D. D.	1	1,560	..	Diesel	1,360	248'6"	43'	17'6"
Pan American Petroleum & Transport Co.	Federal S. B. & D. D.	1	7,700	12	Steam	3,000	440'	66'6"	34'6"
Sinclair Refining Co.	Federal S. B. & D. D.	4	10,500	14	Steam	6,000	505'	72'	38'
Standard Oil Co. of New Jersey	Newport News S. B. & D. D.	1	11,500	18	Steam	13,500	525'	75'	39'
Standard Oil Co. of California	Sun S. B. & D. D.	1	5,200	13	Steam	3,100	375'	57'	29'
Petroleum Shipping Co.	Sun S. B. & D. D.	3	9,800	13	Steam	4,000	500'	68'	37'
Panama Transport Co.	Sun S. B. & D. D.	4	11,400	15½	Steam	7,500	521'	70'	40'
Standard Oil Co. of New Jersey	Sun S. B. & D. D.	2	11,400	15½	Diesel	7,500	521'	70'	40'
Panama Transport Co.	Sun S. B. & D. D.	3	11,400	15½	Diesel	1,500	521'	70'	40'
Texas Co.	Sun S. B. & D. D.	4	9,600	16	Steam	9,000	485'	68'	36'
Atlantic Refining Co.	Sun S. B. & D. D.	2	11,400	13	Turbo-elec.	5,000	521'	70'	40'
Sun Oil Co.	Sun S. B. & D. D.	2	11,400	15½	Diesel	7,500	521'	70'	40'
U. S. Maritime Commission	Sun S. B. & D. D.	5	10,000	16½	Steam	12,000	500'	68'	37'
National Bulk Carriers, Inc.	Welding Shipyards, Inc.	2	11,200	13	Steam	5,000	500'	70'	38'6"
National Bulk Carriers, Inc.	Alabama D. D. & S. B.	1	4,500	12	Diesel	2,400	390'	47'6"	35'
National Bulk Carriers, Inc.	Alabama D. D. & S. B.	2	6,500	..	Diesel	....	416'	70'	40'
Husky Transit Corp.	Ingalls S. B. Corp.	1	950	..	Diesel	540	235'	35'	10'3"

SPARKS . . . FROM THE NEWS

GASOLINE PIPE LINES: A network of gasoline pipe lines leading from refining centers to consumption centers is looked upon as the most satisfactory medium for transporting the vital fuels for military operations. The United States is fortunate in having such a network in these parlous times.

CHEAP AT 40 CENTS: A new refinery located at Fort Norman in Canada and just 125 miles south of the Arctic Circle accounted for aviation gasoline selling there this summer for 40 cents a gallon against $1.50 a gallon before the plant was built. The refinery will only operate about 3 months out of each year.

CHEAP RIDING: The average service-station price of gasoline on October 1, exclusive of taxes, in 50 representative cities in the United States was 12.305 cents per gallon. That means a cost of seven-tenths cent per mile at 18 miles per gallon. Riding behind gasoline engines is cheap.

REMINISCENT: An old boom follower, looking over the crowd of oil men in the lobby of a Falls City, Neb., hotel recently, opined that it reminded him in a small way of the mad throngs that jammed the Westbrook lobby at Fort Worth back in the old Ranger-Burkburnett days.

DISTINCTION: Mississippi now has the distinction of having an oil field wholly within the state with two different voluntary proration agreements dealing with the same sands.

FLANK ATTACK: Another old, dormant Oklahoma pool has come to life again, this time the Lovell field. An outpost on the southeast flank found oil and a new drilling campaign has gotten under way.

MODERNIZATION: Centralia's production has dropped some 80 per cent in 3 months which furnishes another good argument for replacing oil economics of 1910 by a more up-to-date system.

WELL-OILED ROAD: With the Iraq and Iran fields near the terminus, the Berlin-to-Baghdad route is even more desirable to Hitler than it was to the Kaiser. American oil interests are more concerned than they were in 1914.

AGAINST THE TREND: Refiners are pondering the lower compression ratio of the new-model Ford engines. Dropping from 6.6 to 6.2 to 1 on the 1941 models seems to indicate that a lower-octane motor fuel can be used. This engine change is a reversal of the company's past program and is against the trend shown among other engine manufacturers.

STILL HIGHER: Texas' daily allowable oil production is increasing weekly as operators continue to find a "firm market demand" for additional oil that can be produced without "waste." Granting of these special allowables has resulted in the state's average daily allowable being raised to 102,000 bbl. over the Bureau of Mines recommended production for this month—with strong promise of its going still higher.

BLUSHING?: The forests in Missouri at this time of year are a blazing red. Possibly the trees are blushing at what they hear when oil men complete dry hole after dry hole in the state.

BEHOLD THE BUS: Buses and trucks account for one-fourth the gasoline manufactured. Refiners see the advantage of standardized motor fuel quality necessary to attract and hold these discriminating buyers.

OIL COMPANY FINGER-PRINTS EXECUTIVES . . .

Oil companies are especially alert today against sabotage, and many are finger-printing all new employes. Socony-Vacuum has offered to take the finger prints of those already employed. Here a group of the company's executives are having their finger prints recorded. John A. Brown, president, and Miss Olga A. Erickson, industrial-relations department, are in the center of the group. At the left is Harold F. Sheets, vice president, and at the right is George V. Holton, vice president and general counsel

Oil Shortage Dictates Axis' Drive Toward Southeast

By J. P. O'DONNELL

Predictions made early in the European war that Germany would be eventually forced into Rumania to secure full jurisdiction over that country's oil resources have been fulfilled. Out of Rumania's daily production of about 125,000 bbl. internal requirements absorb 50,000 bbl. The first step likely to follow German occupation is drastic reduction of the internal Rumanian consumption. Sudden expulsion of British oil-company executives and abdication by King Carol nullified carefully organized plans to sabotage Rumanian wells before permitting them to fall into Germany's hands.

NEW YORK, Oct. 14.—The drive of the Axis Powers through southeastern Europe and northern Africa with the near eastern oil fields as the ultimate goal, anticipated here 2 months ago, is apparently a reality now. This possibility was first envisoned when Italy began her North African campaign in mid-August and at the same time instituted a verbal attack on Greece. It was heightened when weather apparently balked the proposed invasion of Great Britain and released Nazi forces for service elsewhere and that, the trend of developments indicates, will be in southeastern Europe.

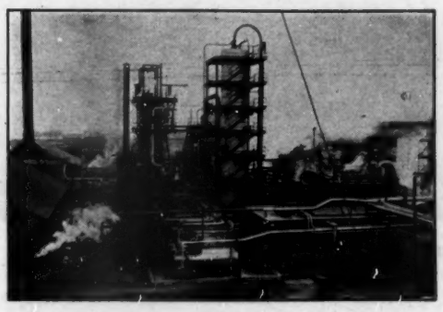
The Axis' known lack of petroleum, reported to be critical in Italy, has dictated such a move. Just what the conquest of this area would mean to an oil-hungry belligerent is apparent from statistics which were obtained when the war was still a western European affair. There are 19 known oil fields in the Asia-Africa junction area with a daily average production, before the war, of 370,000 bbl. and a potential of well in excess of that. The major developed fields are Kirkuk in Iraq, 85,000 bbl.; Masjid-Sulaimen and Haft-Kel in Iran, 75,000 and 150,000 bbl., respectively; Bahrein Island, in the Persian Gulf, 20,000 bbl., and Ras Ghareb in Egypt, 12,500 bbl.

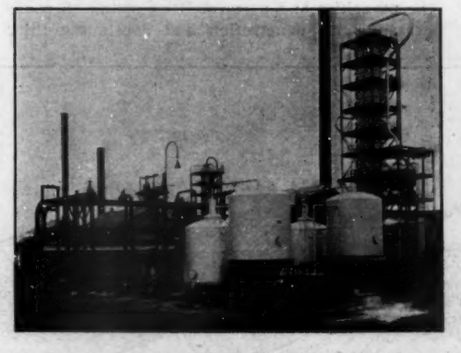
Equally important to a nation engaged in war is the large refining capacity of the district. There are nine refineries with a combined capacity of more than 400,000 bbl. per day, one on Bahrein Island, 20,000 bbl.; two in Egypt, 17,000 bbl.; three in Iran, 333,000 bbl.; two in Iraq, 4,000 bbl., and one in Palestine, 40,000 bbl. Most important of these are the Anglo-Iranian Oil Co., Ltd., refinery at Abadan with a capacity of 280,000 bbl. and a cracking capacity of 125,000 bbl., the same company's 50,000-bbl. refinery at Bandar Shapur which has 30,000-bbl. per day cracking capacity and the Consolidated Refineries, Ltd., plant at Haifa, Palestine, which has a capacity of 40,000 bbl. and a cracking capacity of 20,000 bbl. Both of the Anglo-Iranian refineries are in Iran. The Haifa refinery, already an object of Italian air raids, apparently has not been seriously damaged for operations have been maintained.

Campaign Depends on Russia

The self-evident value of this area, in addition to the Axis' known lack of oil, supplies credence for the belief that the entrance of German troops into Rumania, Italy's campaign in North Africa and the combined verbal and economic attacks on Greece are more than a mere gesture in the direction of the Balkans. The successful conclusion of this apparent campaign, however, is contingent on several things, principally Russia's attitude and secondarily the ability of the near eastern countries to resist Axis advances.

A successful German drive through the Balkans to Turkey would isolate Russia and whether the Soviets will accept such isolation is problematical. The fact that they gave evidence of their displeasure at Germany's virtual seizure of the Danube indicates that further encroachment on what Russia regards as her sphere of influence will be met with some opposition. For this reason the impending Soviet-Axis conference, scheduled for Moscow in the near future, assumes the greatest importance. Germany is now obtaining vital oil supplies from Russia and may not be in a position to surrender this source of supply which would be the result of a Nazi-Soviet break. At the same time it is known that Russia entertains a wholesome respect for the high-geared Nazi war machine and for this reason may be persuaded to ignore further German penetration in the Balkans.





The Romano-Americana, S. A. (Standard of New Jersey) refinery at Teleajan is one of the most modern in Rumania. Top is a view of the cracking coil, fractionating equipment, exchangers and pump house. Below, water-treating equipment with tower and cracking coil in background

Second to Russia as a possible stumbling block in a projected near eastern drive is Turkey, which has reportedly warned the Axis that she will resist aggression and is outspoken in her sympathy for Great Britain. Turkey has a very well-equipped land force of an estimated 300,000 men backed by many more poorly equipped soldiers. Despite this army, however, lack of an air force sufficient to combat the combined forces of Germany and Italy makes it improbable that Turkey alone could stem a German advance. The passing of this barrier would open the way to an invading force, for disorganized French-mandated Syria could offer no resistance.

Great Britain's near eastern army and naval forces are a third factor to be considered. To be of any service the navy would be required to pass through the narrow Dardanelles, an admittedly hazardous feat, because principal transportation lines south of the straits are well inland and out of the range of sea-borne guns. Resistance on land would require the division of an army already outnumbered by Italian forces in Africa.

Preliminary Step

The arrival of German troops in Rumania, ostensibly to guard the oil fields from sabotage, is regarded by some observers as a preliminary step in the reported near eastern drive. Germany has already had control of the Rumanian fields and, through the dominant Iron Guard, was in position to dictate the policies of the country which could protect the fields with its own armed forces. Whether or not the German occupation will be regarded by Britain as a legitimate excuse for bombing Rumanian fields and refineries is a matter of concern in this country which has large sums, estimated at $40,000,000, invested in the Rumanian oil industry. The same is true of the near eastern oil districts where hundreds of millions of dollars of American capital are invested.

One result of the German penetration in Rumania was the cancellation of further Rumanian oil exports to Greece. It is reported as probable that similar action will be taken with other countries sympathetic to the British cause and this would include Turkey which, like Greece, is entirely dependent on imports. However, unlike Greece, Turkey could obtain supplies from Iraq and Iran with comparative ease. With the exception of Germany, Greece has been Rumania's best customer since the loss of French and British markets and in July took a reported 32,000 tons of Rumanian oil. Greece is reported to have only small stocks of petroleum on hand so that her exclusion by Rumania would make her easily vulnerable to attack.

With Rumanian fields completely in command, Germany can take their entire output subject to transportation. Lack of transportation facilities has delayed development of Rumanian fields and there is evidence that Germany is encountering additional difficulties in transporting the oil. It was reported in Yugoslavia last week that the German consulate had protested the "many acts of sabotage against trains carrying Rumanian petroleum to Germany."

Future Oil Possibilities of Newhall-Castaic District

By DAVID WOSK
Consulting Geologist, Los Angeles, Calif.

The complex geology of the Newhall-Castaic district, near Los Angeles, has discouraged drilling in the past. Recent discoveries indicate that there are broad structural elements which can be prospected more profitably than the sharply folded local anticlines.

ONE of the most promising areas in the Los Angeles region of California is the Newhall-Castaic district. This district is limited to the Santa Clara River synclinorium, an area from the Santa Susana Mountains on the south limb to and including the north line of Township 4n, from the east line of Township 16w to and including the west line of Range 17w, in Los Angeles and Ventura counties, California. This area, long productive and looked upon with favor, was dormant for many years prior to the recent discoveries of the Barnsdall Oil Co. at Newhall-Potrero and R. E. Havenstrite at the Del Valle anticline.

In May 1937 the Barnsdall Oil Co. discovered the Newhall-Potrero field (Sections 26-27, Township 4n, Range 17w, Newhall district, a small monoclinal fold (300-500 acres) closed by an east-

Sampling well drilled in 1892 (35°), Dewitt Canyon-Pico anticline, Newhall district

west fault on its south side. The upthrow side of the fault is on the north and the fault hades to the north, having considerable throw. Three zones have been opened in the upper 1,000 ft. of upper Modelo, with more than 2,000 ft. of Modelo thought to be below the present producing zone. The porosities and permeabilities of the oil sands increase with penetration and depth, the third zone being relatively high. Wells range to 7,350 ft. in depth, having an initial production in excess of 5,000 bbl. daily with gravity averaging 36°, bringing an average price of $1.30 per barrel. Thirteen wells have been completed to date. Three hundred acres are considered proved with additional acreage being developed.

Detailed news of this important discovery was not made readily available, and, because of tightly held acreage, little nearby wildcatting was encouraged. Most oil men passed it off with a shrug as a freak in the midst of small producing fields. However, on September 10, 1940, Havenstrite's No. 1 Lincoln (Section 16-4-17) on the Del Valle anticline, 3 miles northwest of Barnsdall's field, blew in as a 10 to 15 million cubic foot gasser producing 400-500 bbl. of 57° oil on a 10/64-in. bean. Tubing pressure was 2,150 lb.; casing pressure was 2,450 lb. Oil sand was penetrated from 6,653 to 6,900 ft., the total depth being 6,950 ft. in the upper Modelo formation which is thought to correspond to the third zone of the Barnsdall Newhall-Potero. This well differs from the Barnsdall discovery in its larger gas content, hence creating greater interest.

The discovery of these two fields, more particularly the Havenstrite, is again focusing the attention of the oil fraternity on the Newhall district.

History of Oil Development

The first petroleum used by white men in California came from the Newhall district where the padres of the early missions gathered tar from natural seeps. The first attempt at refining was made by Andreas Pico, who, in 1856 with a copper still, obtained a small amount of illuminating oil from seepage oil in Pico Canyon near the town of Newhall. Refining on a commercial scale commenced in 1861. The first oil boom was started in this area from 1860-70 and southern California was advertised as having "rivers of oil" which only required pipe lines to carry it to sea port. In 1875 the California Star Oil Co. of Los Angeles drilled its first well, located in Pico Canyon, and the oil industry was born. This and subsequent wells of this area were shallow, penetrating the near-vertical upturned edges of the Modelo formation, finding high-gravity oil in

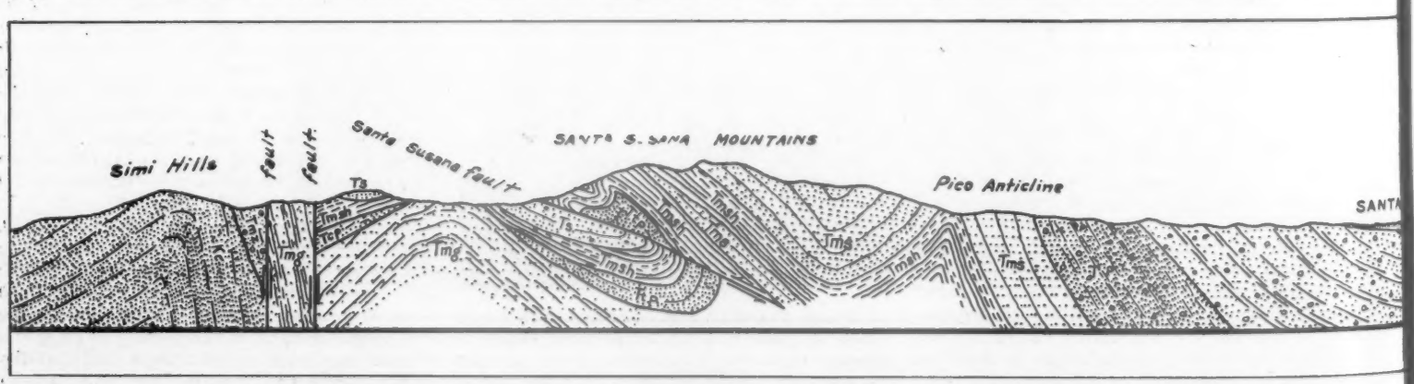


Fig. 2—Southwest-northeast cross-section, showing structural geology of Newhall-Castaic district. EXPLANATION: Recent—Qal—Alluvium. Pleistocene—Qt—Terrace Tmc—Mint Canyon formation. Eocene—Tmg—Meganos formation. Eocene—Tmz—Martinez formation.

small quantities. The stratigraphic penetration was very slight irrespective of the depths of the wells (though few exceeded 2,000 ft.) due to the steep dips where drilling took place (60° to 90°).

Operators were drawn to the area by the numerous seeps of high-gravity oil (30° to 35°) in the canyons cutting the flank of the Pico anticline at Pico, Dewitt, Towsley, and Wiley canyons. Seeps in the Tunnel and Elsmere areas adjacent to the town of Newhall also attracted the early operators. Production was obtained in the upper Modelo formation at Pico Canyon and in other areas on the anticline in both upper and lower Modelo. Near Newhall the production came from the Pico formation overlapping the Modelo. This development in the Newhall district gave birth to both the Union Oil Co. and the Standard Oil Co. of California, two of the most successful companies in the state.

The high gravity of the oil and the slow decline of the wells encouraged drilling in the area, chiefly near the crest of complex, steeply-folded and faulted structures.

Cause of Extreme Deformation

The complex geology of the area was accented by numerous instances in which wells were bottomed in formations younger in age than those in which they started. The extreme deformation caused by great compressive forces resulted in the extreme folding, squeezing, fracturing, and compaction of formations. These factors, together with cementation caused by circulating surface waters, gave rise to very low porosities in the sandstones, especially in the shallow depths being tested. This also increased the operators' hazards. Thus, in spite of the opening of many small, long-lived, profitable fields, the reputation of the area fell and the larger operators practically ceased exploration. (Large-scale discoveries elsewhere, chronic overproduction, and lower crude-oil prices aided this trend.) The small independent operators continued a haphazard exploratory program in the areas not preempted by the majors. Their geological research was frequently inadequate, and most of their tests were shallow and inconclusive as far as lower horizons or deeper structures were concerned.

During this period little consideration was given to accumulation in stratigraphic traps. Thorough consideration was not given to the elimination of the more complex, hazardous areas.

The map at right, Fig. 1, taken from U. S. Geology Survey Bulletin 753, 1924, shows the geological conditions of a portion of the Newhall-Castaic district. Locations of the Barnsdall and Havenstrite discoveries have been added. This area is relatively free from the large-scale disturbances so apparent in the immediately surrounding areas. It thus merits special attention from both stratigraphic and structural considerations.

Stratigraphy

In this area the following horizons are noted:

Recent	—Thin deposit on floor of valleys	
Pleistocene	—Chiefly stream terraces deposited on the eroded edges of the underlying Saugus	±250 ft.
Pliocene	—Saugus formation	±2,000 ft.
	Pico formation	±4,000 ft.
	(At Dewitt Canyon—Bull. 753)	(1,970 ft.)
Miocene	—Upper Modelo	±2,000 ft.
	Lower Modelo	±3,000 ft.

Modelo Formation

The Modelo formation, the main producing horizon in the area, is marine in character, containing alternate shale and massive sand bodies. It thins to the northeast and is replaced stratigraphically by the continental nonmarine deposits of the Mint Canyon (±4,000 ft.). (See Fig. 2.). In a southeasterly direction it also thins rapidly toward the San Gabriel Mountains, the upturned edges being overlapped by the overlying Pico formation. To the northwest and west the Modelo varies widely in thickness, reaching upward of 5,000 ft. in the Hopper Mountain area. Here it outcrops extensively, is deeply eroded, and is replaced by the older, underlying Oligocene-Sespe formation as the dominant producing horizon. though small Modelo production is found over a widespread area. To the southwest and south the Modelo retains its great thickness and forms the outcropping core of the Santa Susana Mountains. Whether additional productive zones underlie the Miocene in this area is unknown.

Any sand body within the Modelo series, or in contact with it, offers possibilities for commercial production. A lenticular sand body may thus be a potential trap irrespective of its structural po-

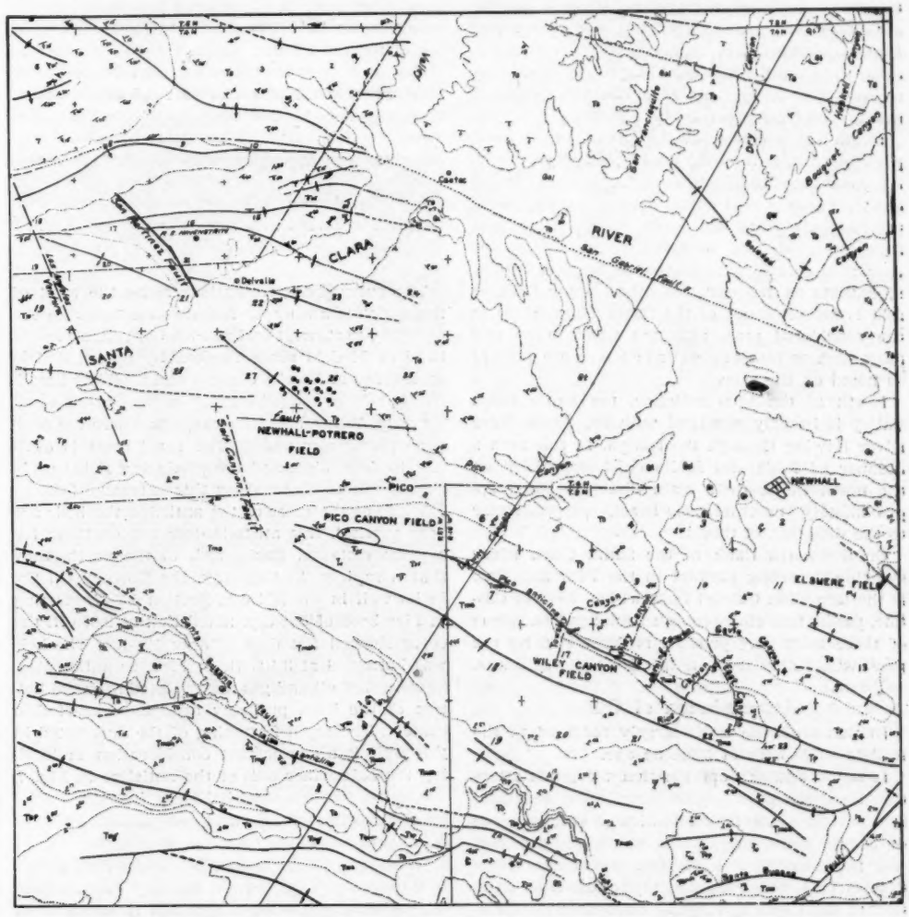
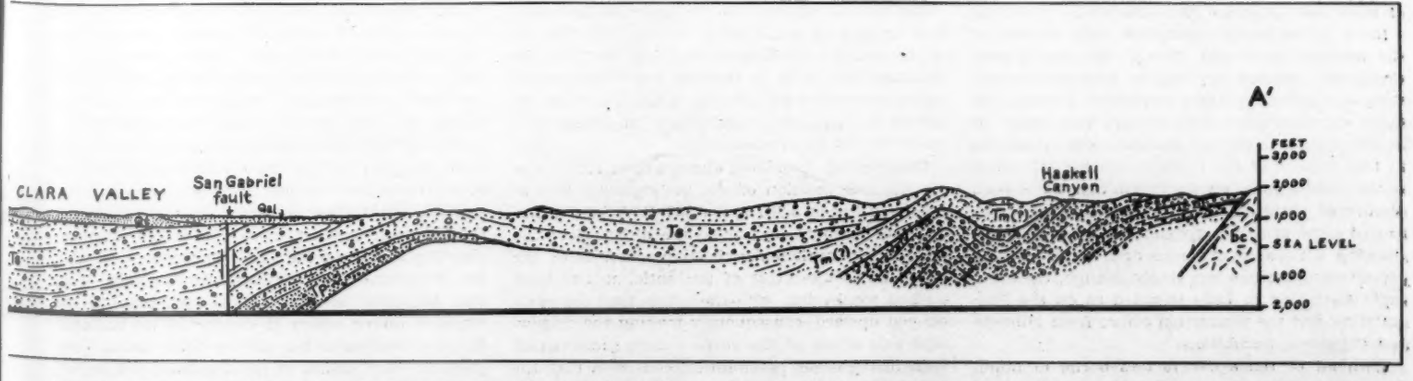


Fig. 1—Geology of the Newhall-Castaic district. For explanation of symbols, see cutline, Fig. 2



Deposits. Pliocene—Ts—Saugus formation. Pliocene—TP—Pico formation. Miocene—Tms, Tmsh, Tm—Modelo formation. Miocene—Tlp—Topango formation. Miocene—U. Cretaceous—Kc—Chico formation. Pre-Jurassic—bc. Horizontal and vertical scale: 1 in. = 1 mile

sition. Too little attention has been paid to this factor to date.

Both extensive oil seeps and some lower Modelo production are noted in the Wiley Canyon field in the Pico anticline. It is doubtful if the lower Modelo horizon has been adequately tested in the other fields of this anticline. It is the opinion of the author that worth-while production from the lower Modelo may be anticipated.

General Structural Factors

The area can be considered as a huge block of sedimentaries bounded on the northeast and east by the pre-Jurassic, metamorphic, and igneous rocks of the San Gabriel Mountains. The direction of thrust is from the northeast to southwest against the rigid mass of the Simi Hills.

This thrust gave rise to the prominent overthrust Santa Susana fault which is evidence that the large mass of incompetent Miocene Modelo sediments was pushed over the more competent Cretaceous Simi Hills; in places the thrusting was more than a mile. The buckling of the Modelo at or near this large fault gave rise to a series of broken complex minor faults and folds.

North and northeast of the Santa Susana fault, paralleling it, is the Pico anticline. Together with its accompanying syncline to the south, it is the most prominent fold of the area, extending along the north flank of the Santa Susana Mountains from approximately the Salt Canyon fault on the west to the basement complex of the San Gabriel Mountains on the east. No other major fault or fold is known south of the Santa Clara River in the considered area, although small faults and folds such as that at Newhall-Potrero are present as noted on the map.

North of the Pico anticline, the Santa Clara Valley is broadly synclinal with the Santa Clara River flowing through the trough. In this area a number of folds and faults exist, especially on the north flank, their main direction being approximately northwest-southeast, perpendicular to the direction of thrust.

On the north flank of the Santa Clara River syncline, trending parallel to the Pico anticline, is the large San Gabriel fault which, west of Castaic, passes into close, complex folding. That some of these folds may produce is illustrated by the Havenstrite discovery on the Del Valle anticline.

Accumulation of Oil

In this area, the oil is largely confined to the Modelo shale beds of Miocene age.

It is the author's opinion that too much attention has been paid to the complicated anticlinal structures and too little attention to various types of stratigraphic traps. The Barnsdall structure can be considered a faulted, monoclinal trap, though true stratigraphic traps with little relation to fault sealing may be discovered. The lenticular character of the sands of the Modelo may give rise to important production on the flanks of large folds such as Pico anticline.

Sand bodies of this character may outcrop at the surface, be sealed through seepage (sometimes only slightly evident) or surface cementation, and yet be prolific producers a short distance downdip from the outcrop. The author is aware of such conditions in the United States and in two regions of the U.S.S.R., where wells with initial productions up to 70,000 bbl. have been discovered within ¼ mile of the near-vertical upturned edges of seemingly continuous sand bodies showing little seep evidence and extremely low porosities at the outcrop. Oddly enough, the same rapid flattening of beds is noted as on the Pico anticline, and the production comes from Miocene and Oligocene formations.

With all of the above factors borne in mind, the author wishes to consider the special importance and character of the Pico anticline and its relation to possible large-scale production, small production having been known there for many generations. This present production is thought to be seepage from deep-seated sources.

Pico Anticline

The Pico anticline, 9 miles long, constitutes the main structural feature favorable to oil accumulation south of the Santa Clara River. There are no known major oil traps between the trough of the broad syncline and the north flank of the anticline. In fact, the only known trapping feature is the faulted monocline of the Barnsdall Newhall-Potrero field which has resulted in prolific production. This fault is not known to exist east of the center of Section 36, and, apparently, does not block accumulation on the Pico anticline east of this point. That a large quantity of oil may be generated and accumulated in small areas is attested to by the long-lived production of the Pico Canyon field less than 2 miles due south of the above-noted fault.

The Pico anticline is not a conventional anticline wherein the strata are arched over an axis. This anticline is characterized by vertical beds along the axis as though great compressive forces and equally resistant buffers directed from northeast and southwest, respectively, caused the incompetent Modelo beds first to buckle, then fracture and be forced into vertical attitudes, and possibly thrust or slip along the crest of the anticline.

The outcropping formations along the crest of the anticline are upper Modelo sandstones on the plunging northwest end at Pico Canyon, a narrow band of Modelo shale flanked by upper Modelo sandstones at Dewitt Canyon and a widely broadening belt of Modelo shale along the crest of Towsley, Wiley, and Rice canyons where the anticline plunges eastward. The exact crest is difficult to determine, and the producing fields probably are local highs along this extensive fold.

While at the crest of the anticline the beds are near vertical, this attitude does not continue for a great distance. Basinward, to the north, they flatten rapidly. In this way, the Downey Oil Co. in its well in the NE cor. Section 1-3-17, starting in Pico beds of 50° dip, noted that at 2,600 ft. the cores showed flat dips of only 12°-18°. The hole was bottomed at 3,100 ft. in Pico, as anticipated. Showings of oil and gas are reported near the bottom of the hole, probably near the Pico-Modelo contact. The rapid flattening of the dips noted in this well is an important consideration in locating the subsurface axis of the anticline in Fig. ?.

Another important well having bearing on the oil possibilities of this area was drilled by J. E. O'Donnell, described by Clute as follows:

"Last year (1939) J. E. O'Donnell drilled a well to some 4,800 ft. in the old Towsley Canyon field on the axis in Section 8-3-16, and it seems to be the consensus that the well drilled in nearly vertical strata the entire distance. Some oil resulted, about 20 bbl. per day, but accompanied by water that apparently could never be shut off. The objective point in drilling a deep test on the main anticline would be to reach a depth where the strata are no longer steeply tilted, but have assumed a flatter attitude, capable of acting as a reservoir for oil accumulation."

Considering the above, the question rises as to the possible position of the underground axis at depths between 5,000 and 6,000 ft. While differences of opinion exist as to the direction of the hade of the anticlinal axis, the author is of the opinion that the crest of the anticline has been pushed southward, with the north flank possibly slipped upward, consequently making the subsurface axis north of the surface axis. Clute, while recognizing other possibilities, considers that the axis has been pushed southward.

The lower Modelo shales may be sealed by slipping at the crest of the fold or that they may be folded on an axis lying north of the surface axis, hence offering excellent possibilities for production in the horizon at such a point. The upper Modelo sand series, which outcrop at the surface, also offer downdip production possibilities due to lenticularity and surface sealing. The large and uninterrupted drainage area to the north of this fold must not be forgotten. Previous drilling on the Pico anticline has not considered these above factors adequately. Although the north flank of the Pico anticline appears to offer the best area for prospecting, other areas should not be excluded from consideration.

The Aztec Oil Co. is preparing to drill a well in Dewitt Canyon on the north flank of the Pico anticline in a location deemed favorable to test the analysis advanced in this article. The Dewitt Canyon area, a high point structurally, offers other evidences favorable to local accumulation. These evidences are live seeps of high-gravity oil at or near two localized crossfaults running nearly perpendicular to the axis of the anticline. Similar localized conditions may be found elsewhere along the Pico anticline. To the author's knowledge, there are no tests drilling or contemplated on the north flank of the Pico anticline at the present time other than that of the Aztec Oil Co., which will be watched with considerable interest by the oil fraternity.

Summary and Conclusions

1. The Santa Clara River synclinorium of the Newhall-Castaic district offers excellent possibilities for additional discoveries of commercial production of high-gravity oil, especially in, or in contact with the Modelo formation.

2. While large-scale production has been found on both sides of the synclinal trough, the south limb of the synclinorium offers the better possibility for sustained production due to thicker beds and larger accumulation areas.

3. The north flank of the Pico anticline offers a natural barrier to the southward migration of the oil rising on the south limb of the Santa Clara synclinorium. Its possibilities have not been adequately explored to date. Large-scale, commercial, high-gravity production should be found at one or more localized areas along this flank.

●

Pure Oil Co. Absolved in Treble Damage Suit

MINNEAPOLIS, Minn., Oct. 15.—U. S. District Judge Gunnar H. Nordbye, in the case of Twin Ports Oil Co. vs. Pure Oil Co., directed a verdict for the defendant at the close of plaintiff's testimony this morning. Judge Nordbye ruled that Twin Ports, a jobber, had failed by proof to establish any damages as a result of the conspiracy of which the major oil companies were convicted at Madison, Wis.

An opinion was delivered by Judge Nordbye, in the course of which he pointed out that the margins under which the Twin Ports company had conducted its business in Duluth, Minn., had not been narrowed by reason of any increase in the tank-car prices of gasoline to jobbers.

The Twin Ports company was a jobber of the Pure company conducting its business at Duluth. It sold gasoline not only through its own retail stations, but also through other dealers. It brought suit against Pure for treble damages claiming that the price-fixing conspiracy of which the defendant was convicted at Madison, Wis., had damaged the Twin Ports by lessening the margins under which it conducted its business, thereby causing a loss to the Twin Ports company on each gallon of gasoline that it handled, and causing the loss of its business and the goodwill thereof.

Texan Charges Ills to Special Allowables

By H. STANLEY NORMAN

DALLAS, Tex., Oct. 15.—Blame for the present threat of federal control and the unhealthy statistical position of the petroleum industry was laid at the door of the Texas Railroad Commission here today. Severe criticism of the commission's administration of conservation laws was leveled by D. G. Gray, executive vice president of the North Texas Oil and Gas Association, Wichita Falls, Tex., who addressed the annual meeting of the National Stripper Well Association.

Other problems of the stripper-well operators were discussed by Harold B. Fell, Ardmore, Okla., executive vice president of the national association; D. G. Powell, Tulsa, executive manager of the Oklahoma Stripper Well Association, and Lee Mulvihill, Robinson, Ill., executive secretary of the Illinois-Indiana Petroleum Association. Jake Hamon of Dallas is president. The stripper-well session October 15 was a prelude to the annual meeting of the Independent Petroleum Association which opened in Dallas October 16 with committee parleys and extended through Friday.

JAKE HAMON
President, Stripper Well Association

HAROLD B. FELL
Executive vice president, Stripper Well Association

The 3-day Independent association meeting featured final report of the committee of 29, headed by W. A. Moncrief of Fort Worth, Tex., which takes the practical form of a declaration of objectives. Encouragement and support of a broadened program by the Interstate Oil Compact Commission was voted by the committee of 29 at its last pre-convention meeting. The report will include findings of a subcommittee appointed to study and report on petroleum imports. Recommendations of the committee of 29 will come before the general association as a part of the resolutions-committee report. The general sessions October 17 and 18 will feature speeches by Hatton W. Summers of Dallas and Wesley E. Disney of Tulsa, members of Congress.

Frank Buttram of Oklahoma City, president of the Independent association, is scheduled to serve another term.

Speaking on the "Effect of Selective Purchasing on Stripper Wells," Mr. Gray asserted today that selective buying of crude oil, producing inequitable conditions between fields, transferring market outlet from one to another, had been brought about by the orders of the Texas commission.

"The encouragement given selective buying by the commission encourages building of larger facilities to move oil from favored fields and likewise encourages the abandonment of facilities in those fields not favored, at the first opportunity. This is particularly alarming to the stripper-well operator. It is a well-recognized fact that a pipe line can gather oil in a flush area much cheaper than it can gather oil in stripper-well areas, and if a purchasing company can get its requirements in a flush field, especially those fields in which it is heavily interested, it will, as a matter of course, seek an opportunity to withdraw as a purchaser from stripper-well areas," Mr. Gray declared.

Special allowables and their insidious infection of the industry drew the pointed barbs from Mr. Gray.

"In adopting such a practice," he said, "the commission creates a weak demand in one field by allotting excessive allowables to another field. If 10 bbl. additional are allotted to any field and the state-wide production is held within state-wide market demand, those 10 bbl. must come off of some other field.

"I think the commission should concentrate its efforts toward making a fair and equitable distribution of the total state-wide demand and stay within that demand. Once a reasonably equitable order is entered, such changes as are necessary from time to time, due to new wells or changes in state-wide market demand, should be made with the view of doing the least possible violence to existing relationship between one field and another. A prudent operator can anticipate new wells and changes in overall demand but he cannot intelligently conduct his business on a sound basis when his allowable is likely to cut in half one month, doubled the next, and then cut in half again."

A share of the blame for permitting existing conditions to prevail was placed by Mr. Gray on the stripper-well operators themselves who he said had been lulled into an attitude of complacency by the Texas marginal-well law. He called for a critical view of regulatory-body activities and for militant dealing with the special allowable question which is harmful not alone to the stripper-well operators but to the industry at large.

"I am convinced," declared the speaker, "that a vast majority of the oil producers in Texas as well as in other states have become so discouraged by the manner in which the regulatory bodies have performed their duties, they have concluded the only way they can protect themselves is to get everything they can for themselves in any manner possible, regardless of the effect upon the industry as a whole. I have not talked to a single oil operator who would not be happy with his share of the business, no more, no less, if he were assured he was going to get that share. Lacking such assurance, most of them have followed the line of least resistance and have done the best they could to protect their own individual interests, relying upon that relatively small group of stalwart individuals, who have not given up the fight, to protect them from complete disaster."

Places Responsibility on Industry

A more lenient view of the regulatory functions in the country as a whole was taken by Mr. Fell, who was inclined to place blame for any shortcomings on the industry, governments of the producing states and the Compact Commission.

"I would not for a moment have you get the impression," said Mr. Fell, "that I do not fully realize and appreciate the splendid progress that has been made during recent years in making our conservation program more effective, but if we are finally to make it fully effective it is essential that we admit and analyze the failures that have occurred and with that as a basis, use every possible effort to prevent these failures in the future and thus more quickly reach the objective sought.

"If the industry, the oil-producing states and the Interstate Oil Compact Commission each does its part unselfishly, honestly, aggressively and sincerely, the present system of conservation can be made to work effectively and equitably. Otherwise, it cannot."

Use of water flooding in stimulating the recovery of oil in old fields now covers about 4,800 acres in Oklahoma and nearly 1,000 acres in Kansas. Mr. Powell told the association membership. He said that the Oklahoma water-flood development has cost an average of $1,250 per acre and in Kansas the same kind of development is costing about 25 per cent more than in Oklahoma. Low price of oil has retarded greater application of the method in the Mid-Continent.

Detrimental effect of flush-production development in Illinois on the older stripper fields was reviewed by Mr. Mulvihill. He blamed failure to enact a conservation law in Illinois for the compulsory abandonment of many stripper properties.

Reserves of the small wells to which Mr. Mulvihill referred were estimated on July 1, 1939, at 37,271,000 bbl. The estimate has been reduced 10 per cent because of abandonments and 15 per cent because of pipe-line proration, lowering the total by 9,317,750 bbl. since the middle of last year.

STATE CAPITALS...

TEXAS

THE UNITED STATES SUPREME COURT on Monday agreed to review the entire question of oil-proration methods and minimum allowables as fixed by the Texas Railroad Commission. The court noted probable jurisdiction in a case brought by Rowan & Nichols Oil Co. of Fort Worth, Tex. (on its Todd-A lease in the East Texas field) to enjoin proration orders issued by the commission. This suit, as well as the one brought by Humble Oil & Refining Co., and on which the court had noted probable jurisdiction on June 3 of this year, will be reviewed some time next month. The Rowan & Nichols and Humble suits attack proration orders in the East Texas field, claiming that the method of allocation used prevents them from recovering their fair share of oil, and have been upheld in the federal district and appellate courts.

Before the Supreme Court adjourned last spring it upheld the Railroad Commission in a similar case filed by Rowan & Nichols as pertaining to its Todd-B lease (The Oil and Gas Journal, June 13, p. 31). This decision is generally regarded as of far-reaching importance in establishing the regulatory powers of state regulatory bodies in their administration of oil proration. Its immediate effect was in allowing the commission to return to a potential basis of proration in the East Texas field rather than a semi-oil-in-place basis as was required by the lower courts' decisions. At that time the court pointed out that "so far as the federal courts are concerned, the evolution of these formulas (proration) belong to the commission and not to the judiciary."

TEXAS DAILY ALLOWABLE PRODUCTION increased over 18,000 bbl. last week to an average of 1,408,096 bbl. on Saturday, the Oil and Gas Division of the Railroad Commission reported on Monday. This placed the state's allowable 102,896 bbl. above the estimated market demand figure of the Bureau of Mines, and allowing 3 per cent for underproduction of allowables (which was the approximate amount in August) still leaves the current permissible 50,600 bbl. above the bureau's figure.

Practically all of the increase was due to an allowable boost granted the Conroe field last week, which was raised from 18,000 to 35,000 to meet market demand for this field's crude. Because the Conroe increase was in the form of a boost in basic allowable, rather than a shutdown exemption, the state's basic allowable was raised to 1,705,615 bbl., or a gain of 26,511 bbl. The amount of exempted allowable, however, declined 253 bbl. to 197,660 bbl.

Following is a summary of the average daily allowables of the various districts as of August 12, with the amount of change from the previous week: Southwest 235,712 bbl., down 267 bbl.; Gulf Coast 227,119, up 19,022; East Central 79,749, up 269; East Texas 372,925, no change; West Central 53,161, up 190; West Texas 221,495, up 1,920; North Texas 130,055, down 1,348; and Panhandle 86,428 bbl., up 248 bbl.

THE CONROE FIELD ALLOWABLE INCREASE was granted effective August 9 by Commissioners E. O. Thompson and Jerry Sadler after operators in the field had shown at an earlier hearing that the oil could be produced without waste and that a firm market demand existed for the oil. Purchasers reaffirmed nominations for more than 50,000 bbl. daily during the remainder of the year, while previous testimony given by engineers to the effect that the field could produce as much as 65,000 to 80,000 bbl. daily without waste was taken as evidence of the field's producing ability.

While affirming the nomination for the increased production given the field, Rex Baker, attorney for Humble Oil & Refining Co., stated his company believes Texas' production is too high and should be substantially reduced; also that a state-wide hearing should be called for this purpose. (Additional action taken by Humble at the hearing and on its requested boost in allowable for four Gulf Coast fields is given on Page 30 of this issue.)

Feeling that a state-wide hearing should be called for the purpose of reducing the state's allowable gained impetus last week as both the North Texas and West Central Texas oil associations requested that this be done by the commission. And in view of Humble's petition for some 38,900 bbl. additional oil in four Gulf Coast fields, Pure Oil Co.'s request for a 3,487-bbl. boost in the Van field, and other requested allowable increases now pending, it is expected that sentiment for a state-wide hearing will be increased.

THE TEXAS SUPREME COURT, in a ruling affecting many thousands of dollars annually in motor-fuel taxes, held in Austin last week that municipalities are liable for the state gasoline tax of 4 cents a gallon whether they buy it in another state or in Texas. The ruling was given in a test case brought by the state against the city of El Paso, seeking $3,286 taxes, penalties, and interest on 70,579 gal. of gasoline imported from New Mexico and consumed in city-owned vehicles. The court's ruling affirmed the Travis County District Court's judgment holding the city liable and reversed the Court of Civil Appeals, which ruled it was exempted. Based on the civil appeals ruling, the Texas Co. earlier this year filed suit in Travis County District Court for the recovery of $20,469 in taxes paid under protest in behalf of itself and 99 municipalities and 144 counties. Thus the Supreme Court's holding is of wide import.

OIL-STATE GOVERNOR . . .

GOV. PAUL B. JOHNSON

As Mississippi's production is now exceeding the Bureau of Mines' estimate of demand, and prospecting is increasing while operators in the Tinsley field have been unable to agree on a single voluntary proration agreement, a considerable part of the next session of the legislature will undoubtedly be devoted to a discussion of proration

OKLAHOMA

THE CORPORATION COMMISSION has ordered spacing patterns for three new fields opened in Central Oklahoma. For the Chism area of Pontotoc County, 40-acre spacing was ordered on application of Kerr-Lynn & Co. and others, where the company completed a 7,000,000-cu. ft. gas well in sand at 2,005 ft. The order covers 2,800 acres in Sections 23, 24, 25 and 26-5n-6e and 19 and 30-5n-7e.

Twenty-acre spacing was fixed for 760 acres in Sections 23, 24, 25 and 26-9n-4e, Pottawatomie County, around the W. D. Grisso, Mudge Oil Co. and others' No. 1 well, which perforated in the Hunton lime at 4,190 to 4,215 ft. to open the field. For the east extension of the Fish field on the Hughes-Seminole county line, 10-acre spacing was ordered on application of W. A. Delaney, Jr., and others. Discovery well was the Delaney's No. 1 Barnhart, in SW NW SE Section 32-7n-8e, which went to the Gilcrease at 2,930 ft.; the order covers 1,220 acres in Section 29, 31 and 32-7n-8e.

CALIFORNIA

THE CALIFORNIA CONSERVATION COMMITTEE will meet next week to set the allowable crude-oil production of the state for the month of November 1940 and it will undoubtedly give considerable thought to the status of Kettleman North Dome with respect to curtailment. Directors of Kenda (Kettleman North Dome Association) meet October 15 to determine what the future of curtailment will be in the Kettleman North Dome field. The Conservation Committee meets on October 23, a week later, and should no doubt have Kenda's answer to the demand for effective curtailment. There is some thought that Kenda will approve a compromise and instead of dropping production down to the allotment set by the Central Committee will reduce production about 3,000 bbl. daily. The whole problem of curtailment depends upon what action Kenda directors take because we can not expect effective curtailment in other fields if the Kettleman Norh Dome field continues to overproduce. The present Conservation Committee is faced with the problem of either securing effective curtailment or admitting defeat and thus jeopardizing stability. If Kettleman North Dome field refuses to reduce crude-oil production to the prescribed allotment, it is generally believed there will be no additional curtailment in other fields and conditions will run along until a general breakdown occurs.

MICHIGAN

A REQUEST THAT RENTAL on oil and gas leases on state lands be cut to a flat 50 cents an acre a year for the 5-year lease term was turned down October 11 by the state Conservation Commission. A resolution by the Michigan Oil and Gas Association making the request said such a move would increase development. F. P. Struhsaker of the lands division recommended against the reduction, contending one might encourage speculators. "This is not desirable," he said. "It ties up state properties and would retard development when legitimate operators are willing to go ahead." The present rate is 50 cents a year, with the provision that the lessee drill within a year. If drilling is delayed, the rental increases to $1.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Forewarned, Forearmed

Soon, the oil industry will be called upon to again fight for its independence. Its adversary will be familiar. It will not be a new enemy that the industry will meet when the gong sounds to start the battle. But he will be garbed in different raiment.

Now is the time to plan the campaign. And there is no better way of doing this than to anticipate the tactics the enemy will employ. Forewarned is forearmed.

First, one can reasonably preclude the possibility that the Department of Justice will spend much time trying to prove monopoly, as such. That is merely a pretext. It has been obvious from the start that the antitrust suit instituted early this month is just another attempt on the part of the Government to get its tentacles into the oil industry. For some reason, impossible to fathom, the Government has long coveted control of oil. When one attempt to gain control is thwarted, another is promptly started. Its bag of tricks seems bottomless. Its adroitness at subterfuge is bewildering.

So, we say, don't be deluded into thinking that a strong defense against charges of monopoly is an adequate armor against this new assault. Beware of the flank attack.

It is our sincere conviction that this flank attack will appear in the guise of national defense. For the current crop of government protagonists is distinctly opportunist. It is given to capitalizing on public opinion, and to fashioning public opinion to suit its ends.

Right now an anxious nation's chief concern is making sure its national defense is improved, its weak spots strengthened, and its people are frenziedly urging that the national armor be reinforced to the utmost. What is more logical, then, than that the Government play upon this anxiety in its attempt to achieve one of its dearest aims? Demagoguery, yes; chicanery, again yes. But why should one expect an adversary given to demagoguery and chicanery to suddenly reform? Why should one expect a leopard to change its spots?

So, we say, look for the government attorneys to pay only lip service during the early part of the trial to monopoly. Then be prepared to have the trial suddenly veer off on a different tangent.

Almost certainly, an attempt will be made to prove that the best interests of national defense will be served if control of the oil industry is vested in the federal Government. Oh, it won't be so simple as that. It won't be called federal control. But that's what it will mean, whatever it is called.

In an address last week, George A. Hill, Jr., oil man and association director, presented the case of the petroleum industry and national defense in an able and scholarly fashion. Every man in the industry should read this address, and harken to the advice it contains. Mr. Hill, as though anticipating the forthcoming ordeal in Washington, sets forth a defense which if followed 100 per cent, would knock into a cocked hat any bright young lawyer's attempt to prove that the Government is better able to direct the oil industry along national-defense channels than is the oil industry itself, operating without government fetters.

In 13 brilliant points, this executive summarizes the case, and tells precisely how each of the points can be achieved. There isn't space to repeat them here, but suffice it to say that the industry is capable of meeting every requirement mentioned, and indeed is already meeting nearly all of them. Should the need arise, the entire program could be put into effect overnight. And it could be carried on infinitely more effectively under voluntary, patriotic industry control, than by the heavy hand of bureaucracy.

Southwest-to-Milwaukee Gas Lines Considered by F.P.C.

MADISON, Wis., Oct. 15.—Efforts to show that Wisconsin would be assured a more stable supply of natural gas from the Hugoton field of Kansas and Oklahoma than from the Texas Panhandle were emphasized here today when the second week of hearings opened on applications of two pipe-line companies to serve this state.

Paul Kayser, El Paso, Tex., president of the Western Natural Gas Co., a subsidiary of El Paso Natural Gas Co., was called for crossexamination before Ewing G. Simpson, Federal Power Commission examiner, sitting jointly with Chairman Reuben W. Peterson, of the Wisconsin Public Service Commission, and Andrew F. Schoeppel, chairman of the Kansas Corporation Commission.

Mr. Kayser said he first entered Wisconsin to investigate the possibility of a natural-gas market here last February or March. He was told then that other companies, including the Natural Gas Pipeline Co. of America, had solicited business in this state 10 or more years ago, but he attributed failure of previous propositions to rate difficulties and an apparent fear in Milwaukee, Wisconsin's largest industrial city, that this area would be subordinated to the Chicago market. He pledged a preferential status for Wisconsin consumers.

The Natural Gas Pipeline Co. is represented at the hearing and several of its officers have been summoned as witnesses. This company, which now serves Chicago, has made no application for a certificate to operate in Wisconsin, but has made clear its position that it considers this state part of its territory under existing authority. The commission's jurisdiction will be decided in passing upon the rival applications of the Western Natural Gas Co. and the Independent Natural Gas Co., a subsidiary of Phillips Petroleum Co., which proposes to build a 22-in. pipe line into Wisconsin from the Amarillo field in the Texas Panhandle. The latter company will be heard at the conclusion of testimony for the Western Natural Gas Co.

The Natural Gas Pipeline Co. already has acquired authority to lay a pipe line in Waukesha County, Wisconsin, and J. J. Hedrick, Chicago, of its legal staff, is authority for the statement that this company plans to build a new pipe line into Wisconsin from the Texas Panhandle, parallel to the line now serving Chicago.

Plans of the Western Natural Gas Co. to build an 802-mile pipe line to Milwaukee, via Dubuque, Iowa, at a cost of $26,208,154, were described last week by Mr. Kayser and J. Samuel Hartt, Madison and Chicago consulting engineer. Previously an amended application was filed providing for a 26-in. line at 510-lb. pressure in place of the originally proposed 24-in. pipe line at 700-lb. pressure, terminating at Milwaukee, with tap lines to Madison, Kenosha, Racine, Beloit, Janesville, Port Washington, Fond du Lac, and Sheboygan.

Declaring this area represents one of the world's greatest industrial centers, Mr. Kayser argued it is entitled to a pipe line separate from that which now serves Chicago. He also claimed his company was first to apply for a certificate.

Mr. Kayser was supported by J. Harper McKay, New York geologist, and James H. Page, petroleum geologist for the Kansas Corporation Commission. Mr. McKay estimated the natural-gas reserves in the entire Hugoton field at 17.6 trillion cubic feet, while Mr. Page placed the reserve in the Kansas portion alone at more than 13 trillion cubic feet. Conceding his state is interested in obtaining a market for its natural gas, Mr. Page pointed out that the Kansas wells are exclusively gas wells while more than 4,000 oil wells are producing in the Texas Panhandle.

There is always a tendency toward tremendous waste of gas in oil fields, Mr. Page declared.

Mr. Kayser proposed to deliver 130,000,000 cu. ft. of salable gas daily to the Wisconsin market, declaring the pipe-line capacity could be expanded to 209,000,000 cu. ft., at a delivered cost warranting a consumer-rate reduction of at least 10 per cent in comparison with artificial-gas rates.

●

Humble Requests Higher Quotas For Four Gulf Coast Fields

HOUSTON, Tex.—Charging that undue discrimination in distribution of allowables continues to be shown against certain fields in which it operates, Humble Oil & Refining Co., in a letter signed by James Anderson, vice president, and addressed to members of the Railroad Commission of Texas, has requested 38,976-bbl. increased allowables for the Hastings, Anahuac, Thompsons, and Webster (Friendswood) fields, all on the Texas Gulf Coast.

This action on the part of Humble is being interpreted by some observers as a second move against the commission's policy of granting increased allowables to all fields in which the operators show that a market demand exists for the additional production. The groundwork for this second move was laid in recent letters by H. C. Wiess, Humble president, to the commission protesting the commission's lenient policy of granting increased allowables and practice of granting allowable increases without holding hearings. (The Oil and Gas Journal, September 19, p. 70, and September 26, p. 23.)

The company is seeking to have production in the Anahuac field raised from its current allowable of 5,230 bbl. to 14,000 bbl.; in the Hastings field, from 12,710 to 21,000 bbl.; Thompsons, from 5,522 to 12,500 bbl.; Webster, from 5,062 to 20,000 bbl. or a total allowable increase of 38,976 bbl. to 67,500 bbl. Humble is the only purchaser in the Webster field, one of two at Hastings and Thompsons, and one of four at Anahuac. Date of hearing on the petitioned raises was set by the Railroad Commission for October 22.

Mr. Anderson's letter reiterated former contentions that the company believed that "the allowable for the state as a whole was too high, and if not reduced, and if inequities were not adjusted, the result might be detrimental to the state." It also pointed out the "commission has continued to grant special increases in allowables to numerous fields in the state and has exempted numerous other fields from shutdowns, thus increasing the overall state allowable considerably beyond the Bureau of Mines estimates of market demand, and at the same time increasing the condition of inequity that exists among fields in the state."

Conclusion on the part of the company to request the increased allowables for the four named fields was reluctantly formed, Mr. Anderson wrote, and the request is being done as a practical matter with "the feeling that the commission will at an early date in an appropriate manner reduce the overall state allowable to a figure below the Bureau of Mines estimate of market demand, thereby preventing physical waste by avoiding undue accumulation of stocks."

"It appears," he stated, "that our only hope of obtaining an equitable distribution of the allowable among fields in the state is to ask that the allowable be increased in particular fields where the discrimination is extremely great."

Regarding the Conroe field hearing the letter, dated October 9, commented as follows:

"At the hearing held yesterday in Austin on the application of some Conroe operators for an adjustment of the allowable for that field, our representative again made our position plain. After the hearing was over, Commissioner Thompson indicated to our representative that the commission would probably find it necessary at an early date to decrease the state allowable but that this would perhaps be accomplished by increasing the number of shutdown days. He also suggested that the only practical way for the Humble company to obtain adjustment of the allowable in fields in which it is interested, is to request an increase of the allowable in those fields and to show that such an increase could be made without causing physical waste and that there is a firm market demand for the increased allowable. . . ."

Following the Conroe hearing referred to, the Railroad Commission approved an increase in the allowable production of that field from approximately 18,000 to 35,000 bbl. daily. The Humble letter then went on to state that if the allowables of the four fields in question were increased in line with the additional allowable granted the Conroe field, allowable production from them would be raised to the aforementioned figures. Mr. Anderson went on to show that nominations on file with the commission and additional nominations requested in letter constituted a firm market demand for the proposed increase in allowable for the four fields; that each of the four fields could produce the additional oil without waste.

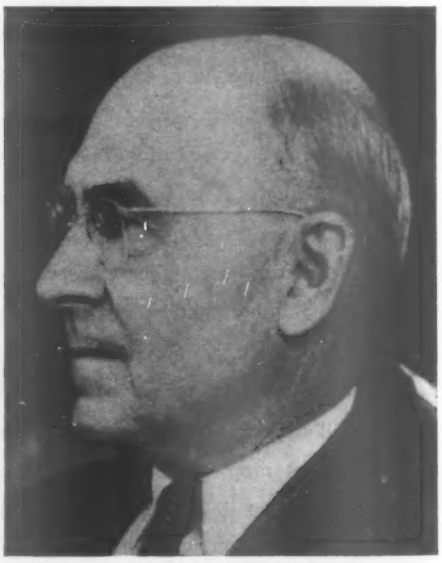
Also, in a table it was shown that the fields mentioned were being severely discriminated against on per-well basis, per-acre basis, reserve basis, or any combination of the three.

●

R. S. Ellison, Stanolind Head, Will Retire Next Month

R. S. Ellison, president of the Stanolind Pipe Line Co. and of Stanolind Oil Purchasing Co., will retire on November 5, in accordance with the retirement plan instituted by Stanolind. Mr. Ellison will reach the age of 65 November 6.

Mr. Ellison first had experience in the oil industry as active counsel for Midwest Refining Co. in 1906. Nine years later he was made chief counsel of the company, and in 1919 he became vice president in charge of field operations at Casper, Wyo. In 1930 he came to Tulsa as president of Stanolind Crude Oil Purchasing Co., and 2 years later he became president of Stanolind Pipe Line Co.



R. S. ELLISON

Mr. Ellison's chief outside interest for several years has been Boy Scout work. For nearly 8 years he has been council president, which work he will also give up, as he plans to return to his former home in Colorado Springs, Colo., where his mother resides.

A successor to Mr. Ellison has not yet been named by Stanolind.

New Wage-Hour Law Definitions Remove Some of Complaints

By HENRY D. RALPH

WASHINGTON, D. C., Oct. 14.—Exemption of more "white collar" workers from the overtime provisions of the federal wage-hour law is provided in new regulations issued by the Department of Labor to become effective October 24, the day on which the act requires overtime to be paid beyond 40 hours per week.

The new regulations are designed to remove some of the chief complaints against the operation of the law by providing that higher-paid and more responsible employes are not subject to the requirements of overtime pay and record keeping. This is accomplished by revising the definitions of employes engaged in an "executive," "administrative," "professional," or "outside salesman" capacity.

A series of hearings was held by the Wage and Hour Division during the summer at which spokesmen for many trades and industries presented objections to the old regulations and suggested new definitions. The new definitions are in broad language, applicable to all types of employment, and are not specifically directed to conditions in the oil or any other industry.

Together with the announcement of the new definitions, the division informed employers that the 40-hour week will apply for the first time to the first full work-week beginning on or after midnight of October 23, 1940. The present minimum wage of 30 cents per hour remains unchanged.

According to the Fair Labor Standards Act, which became law on October 24, 1938, it was provided that during the first year employes should receive a minimum wage of 25 cents per hour, with overtime at the rate of time and a half the regular wage rate for all hours over 44 in any work-week. For the second year, expiring the coming October 23, minimums were raised to 30 cents per hour, with overtime at the rate of time and a half after 42 hours. Beginning October 24, the maximum work-week without overtime is set at 40 hours, but the minimum wage does not increase to 40 cents an hour until October 24, 1945.

A discussion of the employes in the petroleum industry who come under the wage-hour law was contained in The Oil and Gas Journal for September 19, 1940.

Changes in Regulations

Principal change in the new regulations just released is a separate definition for an administrative employe, previously defined together with an executive. Oil-company witnesses had complained to the division that a single definition for the two terms was causing a great deal of confusion in the industry.

New definitions provide that an executive remains one whose primary duty consists in management, and who among other qualifications gets at least $30 per week. Administrative employes are more broadly classed to include those whose duties, while important and associated with management, are functional rather than supervisory, and who are paid not less than $200 per month.

Definitions of professionals and outside salesmen were changed at the same time. The category of professional has been narrowed by the stipulation that those who are exempt from overtime requirements must be paid $200 per month or more. It was explained that there is no legal obligation to pay such men as graduate chemists and engineers $200 per month, but that if they are not paid that amount they must be given time and a half for all work over 40 hours per week.

The definition of "outside salesman" was widened to exempt "driver-salesmen" from the act, with a further change to assure exclusion of advertising solicitors selling publication contracts and freight solicitors.

Under the new definition an "executive" employe, to be carried on the pay-roll records as exempt from overtime, must meet six tests:

1. His primary duty consists of the management of the establishment in which he is employed, or a customarily recognized department or subdivision thereof.

2. He customarily and regularly directs the work of other employes therein.

3. He has the authority to hire or fire other employes, or his suggestions and recommendations as to the hiring or firing and as to the advancement and promotion or any other change of status of other employes are given particular weight.

4. He customarily and regularly exercises discretionary powers.

5. He is compensated for his services on a salary basis at not less than $30 per week (exclusive of board, lodging or other facilities).

6. His hours of work of the same nature as that performed by nonexempt employes do not exceed 20 per cent of the number of hours worked in the work-week by the nonexempt employes under his direction. But this sixth requirement does not apply in the case of an employe who is in sole charge of an independent establishment or a physically separated branch establishment.

Three types of "administrative" employes are exempted by the new definition for that term. All must be paid $200 a month or more (exclusive of board, lodging, or other facilities); all must be engaged in nonmanual work which requires the exercise of discretion and independent judgment. The first type exempted is one who regularly and directly assists an executive or another exempt administrative employe. The second is one who performs under only general supervision office or field work directly related to management policy or general business operations along specialized or technical lines requiring special training, experience, or knowledge. And the third is one whose work involves the execution under only general supervision of special assignments or tasks directly related to management policies or general business operations.

As to salary requirement, the report states: "The employes for whom exemption is sought under the term 'administrative' have extremely diverse functions. It is further evident that in many instances their function is difficult to identify, although it may well be important. In such a situation, the final and most effective check on the validity of the claim for exemption is the payment of a salary commensurate with the importance supposedly accorded the duties in question. Furthermore, a title alone is of little or no assistance in determining the true importance of an employe to the employer. Titles can be had cheaply and are of no determinative value. Thus, while there are some superintendents of maintenance who qualify for exemption under Section 13(a)(1) (normally under the term 'executive'), it is not hard to call a janitor a 'superintendent' or a 'superintendent of maintenance' if some result desirable to the employer will flow therefrom."

Legal Tests on Law

While the activity of the Wage and Hour Division continues, the recently convened Supreme Court finds three cases on the docket this session testing the legality of the Fair Labor Standards Act.

Of the three cases, one was decided against the division and two were favorable. Particularly interesting to the petroleum industry because of parallel conditions is the Darby Lumber Co. case. The company produces and manufactures lumber which it sells outside of Georgia. The Government charged that the company comes under the jurisdiction of the wage-hour law because the lumber is being made according to orders received from other states, with the intention that it be shipped to those states.

In deciding against the Government, a District Court rules that the mere manufacture of goods is not commerce, nor is it made interstate commerce by the fact that the goods are later intended to be shipped outside the state. The court held that if the act was intended to cover such manufacturing operations it is unconstitutional.

The Darby indictment was dismissed by the court in the following words:

"Under the interpretation of the indictment before us and of the Fair Labor Standards Act as urged by the Government, the regulation of labor would embrace not only (by illustration in the present case) the man who cut the lumber and hauled it to the mill, but also the man who planted the seed and cultivated the trees. If the interstate-commerce clause carries with it such power to thus create a centralized government as against an 'indestructible union of indestructible states,' the sooner it is known the better. It is my opinion that Congress has not yet gone to that extent, and that if it has the act is unconstitutional."

Since the production and refining of petroleum is in many respects similar to the production and manufacture of lumber, the application of the wage-hour law to the oil industry will certainly have to be changed to the extent that the high court rules in favor of the Darby company. But viewing past decisions of the Supreme Court upholding New Deal laws, it is not expected that the Fair Labor Act will be found unconstitutional.

Gasoline and Oil Economy Stressed in 1941 Cars

THE automobile industry is anticipating a 10 to 15 per cent increase in new-car sales volume in the 1941-model season following an increase of approximately 20 per cent in the season just ended. This optimism is based on already noted improvement in the last part of this year and expectation of substantially improved economic conditions generally next year.

New cars to meet this anticipated demand went on joint display for the first time at the New York automobile show which opened October 12. Once again it was evident that gasoline and lubricating-oil economy is being stressed as a major selling point of the new cars. As a whole the 1941-model cars reveal comparatively little mechanical change. The trend to higher compression ratios and greater horsepower continues and oil filters of various types are standard equipment on many of the new cars and optional on others.

The accompanying table of compression ratios of a number of the new cars shows more changes this year than last with 5 of the 14 models included having higher ratios in contrast to but two increases in the previous year. Also included in this year's list is one reduction, Ford having dropped from 6.6 to 6.2, the first break in the upward trend that has been under way for years.

Except in the case of Cadillac and Hudson, which have advanced their standard compression ratios to 7.25 to 1, an increase of but 0.25 in the case of the Hudson, the compression ratios on all other cars fall within established limits. Therefore so far as their efficiencies are affected by the ratio of compression, the motor fuels of the past season will be suitable for the next and any demand for improvement in fuels will come not as a result of consumer requirements but as a result of competition within the industry itself.

The compression ratios given in the accompanying table are those of standard types, but higher optional ratios are offered by a number of manufacturers.

Comparison of the standard compression ratios of 1941 cars with those of 1940 and 1939 follow:

Car—	1941	1940	1939
Buick 40	6.5	6.1	6.1
Cadillac	7.25	6.25	6.25
Chevrolet	6.5	6.25	6.25
Chrysler	6.8	6.8	6.8
De Soto	6.8	6.5	6.5
Dodge	6.5	6.5	6.5
Ford 60	6.2	6.6	6.6
Hudson	7.25	7.0	6.5
Nash	6.3	6.3	6.3
Oldsmobile	6.2	6.2	6.2
Packard 120	6.41	6.41	6.41
Plymouth	6.7	6.7	6.7
Pontiac	6.5	6.5	6.2
Studebaker	6.5	6.5	6.5

Changes in combustion-chamber and piston design are credited by a number of manufacturers with improving motor-fuel efficiency.

Several carburetion changes have been made in the new cars this year, all designed to improve fuel efficiency. In some cases twin carburetors are so manifolded as to supply fuel to all eight cylinders, one supplying normal requirements and the other cutting in for rapid acceleration of greater top speeds. The new carburetor system is reported to result in a 12 per cent greater gasoline economy and an 18 per cent increase in horsepower.

New-Type Oil Cleaner

The principal development of interest to lubricating-oil suppliers is the new-type oil cleaner. This filter is in decided contrast with the types commonly in use which use metallic or cloth filter media since it employs the settling principle for removal of contaminants. This filter is located in the engine base and is a permanent installation though the settling chamber can be removed and cleaned. The oil passes from the sump through a screen and up through an oil-inlet line. At the top of this line, the flow is directed downward to a baffle which reverses the flow and the oil is taken to the pump and thence to the bearings.

Also of interest to lubricating oil suppliers is a new-type bearing. The babbitt surface of the new bearing is kept below 0.005 in. with the result that there is less material resistance to strain. By locating the connection between the transmission shaft and the propeller shaft in the transmission housing, thereby lubricating it with transmission oil, one manufacturer has eliminated another chassis-lubrication point.

The oustanding change in crankcase-oil recommendations is that announced by Packard which this year urges owners to change at from 1,000 to 2,000 miles whereas last year the change recommended was from 2,000 to 3,000 miles. While most recommendations are unchanged, both from the type of oil and from the period of change, increased stress is put on the desirability of frequent change in owners' manuals.

Fluid drive is extended this year and is now available on Oldsmobile, Chrysler, Dodge, and De Soto, Overdrive in a number of variations is also available on a number of the new cars, as extra equipment in some and as standard in others. Gasoline economy of from 7 to 20 per cent is claimed by manufacturers.

●

Expect Early Developments On Attempt to Gain Title To Submerged Oil Lands

WASHINGTON, D. C., Oct. 14.—Definite developments are expected soon in the attempt of the Navy Department to assert title to submerged oil lands off the coast of California and perhaps elsewhere.

Department of Justice officials consistently deny current rumors that they are about to file a suit against the State of California to secure title to oil pools off the coast in the vicinity of Los Angeles, but the rumors persist nevertheless.

The question of title to certain of these submerged fields is involved in the condemnation suit recently filed on behalf of the Navy to take over some 333 acres of beach and tidelands on Terminal Island, Los Angeles and Long Beach, Calif., for construction of a dry dock and other Navy works. Secretary of the Navy Frank Knox has invited the mayors of Los Angeles and Long Beach to come to Washington soon for a conference on problems involved in this suit. Under general expediting legislation the Department of Justice took possession of the land involved so that work can proceed immediately, but payment of compensation and clearing the legal title await the outcome of court proceedings.

In an effort to clarify the situation, Rep. Lee E. Geyer of California has introduced a resolution declaring that title to submerged and tidelands is vested in the states rather than in the federal Government. If this resolution should be adopted it would terminate a lengthy controversy over ownership of coastal oil pools.

Submerged oil pools off the California and Gulf coasts are now being developed under state permits and leases, but attorneys of the Navy Department hold to the legal theory that the bed of the ocean between the low-tide mark and the 3-mile limit is the property of the federal Government rather than the adjacent states.

Passage of the Geyer resolution would end the matter, for it refers to the pending legislation, condemns the threat of suits over ownership of submerged lands, and surrenders federal claim to them.

Skeehan Named as Successor To Messner, by Barnsdall

Edward M. Skeehan has been elected treasurer of the Barnsdall Oil Corp., Tulsa, succeeding the late Lawrence D. Messner, who died on October 4 while on a hunting trip in South Dakota.

Mr. Skeehan has been with the Barnsdall interests since 1906 and has been with the present company since its inception. Since 1932 he has lived in California, but his duties with Barnsdall have kept him in close touch with their nation-wide activities. He is a native of Pennsylvania, and is widely known throughout the eastern oil industry as well as in the Mid-Continent and on the Pacific Coast.

DEATHS

JOHN T. McDONNELL, 51, assistant treasurer of Mid-Continent Petroleum Corp., Tulsa, died last week in a hotel room in Terre Haute, Ind. It is believed death was due to a heart attack. Mr. McDonnell was born in St. Louis, Mo., and came to Tulsa in 1919, entering the employ of the Mid-Continent company as accountant. Survivors include his widow, two daughters and two sons.

CHARLES L. EMMONS, 77, pioneer in the Kevin-Sunburst field in Montana, died last week at his home in Kalispell, Mont.

BENJAMIN STOVER, 81, former production superintendent for the Derby Oil Co., died October 10, following an illness of 2 years.

DR. CHARLES C. COULTER, 72, geologist and mining engineer, formerly of Denver, Colo., died in his hotel room at Billings, Mont., to which city he had moved on October 5. He had made several trips around the world and was organizer of the Arctic Club, of Seattle.

FREDERICK STANLEY SHEPARD, 60, general manager in charge of the eastern refineries of Socony-Vacuum Oil Co., Inc., died at his home in New Rochelle, N. Y., October 10. Mr. Shepard graduated from Harvard University in 1903 and joined the Standard Oil Co. of New York that year. He was a member of the Society of Automotive Engineers.

HERMAN B. HARGROVE, 40, vice president of the Cockburn Oil Corp., Houston, Tex., died Saturday in a local hospital after a brief illness.

COLIN F. WHITTIER, 71, retired president and one of the founders of the Richfield Oil Co., died last week following a long illness at his home in Los Angeles. A native of Maine, Mr. Whittier participated in the Yukon gold rush in 1898, and settled in California in 1906. He and J. M. Kent established the Union Oil Co. When in 1925 he and Mr. Kent formed the Richfield company, Mr. Whittier assumed its presidency which he held until 1928, when he relinquished to join independent petroleum groups. His widow, a daughter and a son survive.

●

THE MARKETS*

CRUDE OIL: Conditions in the crude-oil market are mixed. Some areas in the Southwest are depressed by dullness in the export market but in general current quotations are on fairly firm ground. Demand is particularly strong for crudes yielding relatively high percentages of fuel oil.

REFINERY: The tank-car market for all grades of fuel oil has stiffened slightly in the past 10 days. Improvement is most noticeable in the range oils and tractor fuels. The natural-gasoline market moved forward 0.25 cent in Oklahoma and North Texas. Refinery gasoline is unchanged although current quotations are considered soft.

TANK-WAGON AND POSTED DEALER: Reductions of 1 to 2 cents made late last month at scattered points in the Rocky Mountain section and in Georgia were reported this week. There were no changes of a general character. Prices were cut in Kansas City as much as 2 cents per gallon.

FINANCIAL: Oil securities sold over a narrow range and yielded more ground. Average of 30 representative stocks for the week ended October 12: High, 21.72; low, 20.90; close, 21.18. Week ended October 5: High, 22.03; low, 21.24; close, 21.69.

*Detailed information in Market Section.

International

Germany . .

Production Estimated 500,000 Bbl. Monthly

GERMANY'S internal production of crude oil is currently averaging about 500,000 bbl. a month, according to the calculations of Sidney A. Belovsky, United States consul at Bremen.

Although no official statistics are available, indications are that internal production in Germany has been increased substantially since the outbreak of war.

Total German production, including Austria and other new fields opened up during 1939, averaged 433,000 bbl. monthly as compared with 337,500 bbl. in 1938 when Austrian fields were not included, Consul Belovsky reported to the Department of Commerce. Hannover fields account for approximately half of the petroleum produced in the Old Reich.

The acquisition of Alsace, following the capitulation of France, substantially increased Germany's oil resources. The Alsatian oil fields operated in recent years by a private French company under state lease produced annually between 450,000 and 500,000 bbl. Since the reincorporation of this French province into Germany, the fields have been exploited by the German Petroleum Corp., appointed trustee of the fields.

Additional petroleum resources were acquired by Germany in the Protectorate of Bohemia and Moravia and in the occupied portion of Poland.

The territories acquired by Germany represent a liability so far as petroleum is concerned despite the existence of a few small fields. All of the countries brought under German domination since outbreak of the war are normally dependent on imports for part of their petroleum consumption in peacetime.

Rumania . .

Close Market of 6,500 Bbl. Daily

THE Rumanian order prohibiting petroleum exports to Turkey and Greece closes a market which for the first 6 months of 1940 absorbed about 6,500 bbl. daily.

Behind the termination of petroleum shipments to Turkey and Greece is evidence of German influence in Rumanian affairs. Exports to Turkey in particular show a spectacular rise this year over a comparable period in 1939. Rumania shipped 702,475 bbl. of petroleum to Turkey the first half of the year, an increase of 580 per cent. Cessation of Rumanian shipments to Turkey carries a dual inference. In the first place, the oil previously exported to Turkey may be needed by the Axis Powers and in the second place, the Turkish supplies may be aiding the British in near eastern operations. Rumanian shipments to Greece totaled 470,370 bbl. for the first half of 1940, an increase of 51 per cent.

Rumania produced 22,335,070 bbl. of crude oil during the first 6 months, according to a review in the current issue of Moniteur du Petrole Roumain. The first-half output compares with 22,740,050 bbl. for the same period in 1939.

Details of production disclose that the Prahova district, which includes the Tintea and Lilesti fields, was the only one in Rumania to show an increase this year over 1939. Practically all the increase in Prahova is assignable to the Tintea field which alone produced 3,992,150 bbl. in the first half, a daily average of 21,935 bbl.

Influence of the European war on Rumania's petroleum industry is reflected more impressively in the amount of drilling than in production data. Total drilling in Rumania through the first 6 months was 388,955 ft., a decline of 36,080 ft. from the same period in 1939.

Exports for the 6 months totaled 13,180,210 bbl., a decline of almost 20 per cent. Great Britain received 3,424,290 bbl. of all Rumanian petroleum exports during the first 6 months, a decline of 906,640 bbl. in comparison to 1939. Germany was the destination for 1,951,170 bbl. in the first half, a decline of 1,187,435 bbl., which explains in part the Reich insistence that all exportable Rumanian petroleum be made available at this stage of the year.

RUMANIAN PRODUCING AND DRILLING ACTIVITY

	Production (bbl.)		Footage drilled	
District—	6 mos. 1940	6 mos. 1939	6 mos. 1940	6 mos. 1939
Prahova	14,911,300	14,288,620	304,605	363,235
Dambovita	7,128,165	8,127,710	82,190	55,395
Bacau	157,250	169,335	1,550	1,555
Buzau	138,355	154,385	610	4,850
Total	22,335,070	22,740,050	388,955	425,035

Argentina . .

Crude-Oil Production Reaches New High

CRUDE-OIL production by Yacimientos Petroliferos Fiscales, the government company in Argentina, reached a new high of 1,075,675 bbl. in July compared to 830,346 bbl. for the same month a year ago and with 1,009,625 bbl. in June.

Estimating the production by private companies in Argentina at 4,711,000 bbl. for the first 7 months of the year in addition to 6,837,345 bbl. by the Y.P.F. gives the country an aggregate of 11,548,345 bbl. for the period.

Y.P.F. production through the first 7 months of this year has increased 1,098,075 bbl. over the same period in 1939, a gain of 19.13 per cent.

Mexico . .

80 Per Cent of Exports Moving to United States

APPROXIMATELY 80 per cent of all Mexican petroleum exports are currently moving to the United States. Shipments to the United States totaled 1,451,000 bbl. in June, approximately 1,862,000 bbl. in July and about 2,000,000 bbl. in August, an average of 64,500 bbl. daily.

Importation of Mexican oil is opposed by producers in the United States because of an indigenous surplus. Appeasement of domestic oil producers by limiting imports of Mexican oil and at the same time preventing it from forming a bond of political and industrial relationship with countries inimical to security of the Western Hemisphere is one of the most complex problems faced by the Department of State.

Venezuela . .

Two Venezuelan Fields Join List of Producers

TWO new oil fields were added to the list of commercial producing areas in Venezuela in August. The new fields are Guario, opened by Socony-Vacuum Oil Co., about 5 miles east of the San Joaquin field in the central part of Anzoategui, and Los Caritos, opened by Texas Co. (Venezuela) Ltd. in the eastern part of the State of Monagas.

The Guario field, which is thought to be closely related to the San Joaquin and El Roble producers in the section of Anzoategui, proven productive by a series of wells drilled during the past 3 years, entered the list of commercial Venezuelan fields with a daily output of approximately 100 bbl. Texas Co.'s Los Caritos field produced approximately 200 bbl. daily in August.

Despite the inclusion of the two new fields and another increase in the output of the Oficina district, Venezuela's total crude output suffered a substantial decline in August compared with July.

Daily average production in August was approximately 507,423 bbl., against 555,887 bbl. in July. The total of 15,730,105 bbl. for August was calculated by converting 2,247,160 metric tons at the rate of 7 bbl. per ton. Production in July totaled 17,232,502 bbl.

The combined output of subsidiaries and affiliates of Standard Oil Co. (New Jersey) in August amounted to 6,020,485 bbl., compared to 7,181,015 bbl. in July. Operating subsidiaries and affiliates of the Royal Dutch-Shell group, which includes Caribbean, Colon, and Venezuelan Oil Concessions produced 6,002,240 bbl. in August, compared to 6,506,285 bbl. in July.

The following table shows the production and exports for August by companies:

	Production	Exports
Caribbean Petroleum Co.	1,023,820	434,740
Venezuelan Oil Concessions, Ltd.	4,430,175	4,750,075
Colon Development Co.	548,245	568,450
Lago Petroleum Corp.	3,800,050	2,932,475
Mene Grande Oil Co.	3,620,080	3,181,465
British Controlled Oilfields, Ltd.	22,590	86,480
Central Area Exploitation Co.	55,810	.....
Standard Oil Co. of Venezuela	2,194,050	2,487,770
Compania de Petroleo Lago	26,385	.....
Tocuyo Oilfields of Venezuela	.....	.....
Socony-Vacuum Oil Co.	2,660	.....
Texas Co. (Venezuela) Ltd.	6,240	.....
Total August	15,730,105	14,441,455
Total July	17,232,502	14,552,820

The following table shows the production in barrels by fields in August:

Cabimas	1,617,635
Lagunillas	5,227,135
Tia Juana	3,007,775
Bachaquero	178,935
La Concepcion	63,845
La Paz	36,665
Mene Grande	1,023,830
El Cubo	548,245
Cumarebo	78,335
Las Palmas	2,395
El Mene de Mauroa	22,500
Hombre Pintado	55,810
Quiriquire	1,219,955
Pedernales	165,540
Temblador	363,515
Oficina	1,492,490
Jusepin	403,605
Santa Ana	10,925
San Joaquin	118,200
El Roble	79,115
El Tigre	3,530
Guario	2,660
El Mene de Acosta	.....
Los Caritos	6,240
Total August	15,730,105
Total July	17,232,502

Helps Supply Men *Do A Better Job!*

There are many advantages provided supply men by the Producing Equipment Directory which make it one of the most valuable books in a supply store.

Of special importance is the complete Buyer's Guide—a separate part of the Directory—which includes the names and addresses of ALL manufacturers, and a list of ALL equipment required in oil and gas operations. These listings have been made as nearly one hundred per cent accurate as possible thru a costly method made solely for the purpose of compiling the only up-to-date buyer's guide available.

Of invaluable assistance also are hundreds of pages of detailed information concerning producing equipment, contained in the advertising of leading manufacturers, which are located under convenient, systematically arranged tabs for the purpose of enabling buyers to make quick comparisons and intelligent decisions.

Another feature is the complete API specifications, revised according to the latest adoptions made by the API up to 1940.

With the addition of the comprehensive engineering data sections—an encyclopedia in itself—supply men have at their finger tips a handbook without parallel!

And since all supply stores, engineers, production superintendents, purchasing agents and all others who specify, or have the authority to buy or influence the purchase of producing equipment have been supplied with a Directory, quick reference may be made between the buyer and supplier and a more satisfactory service established as the result of filling orders and answering questions accurately.

Thus, the Directory not only helps supply men do a better job of selling but enables buyers to do a more intelligent job of buying!

Published by

PETROLEUM DIRECTORY PUBLISHING CO.

211 So. Cheyenne ● Tulsa, Oklahoma

Affiliated With

The Oil and Gas Journal

Natural Gas News

A.G.A. Confers Munroe Award On Herman Russell

ATLANTIC CITY, N. J.—One of the highest honors within the gift of the American Gas Association was conferred on Herman Russell, president of the Rochester Gas & Electric Corp., Rochester, N. Y., at the concluding general session of the association's annual convention held here last week. Mr. Russell received the Charles A. Munroe award for having made the most outstanding recent contribution toward the advancement of the gas industry. The award was made to Mr. Russell "for his accomplishments of a fundamental and permanent nature in the interests of the gas industry."

The award, consisting of a substantial financial acknowledgment and engrossed certificate, was presented by the donor, Charles A. Munroe, of New York, past president of the association. The award committee consists of Bruno Rahn, chairman, of Milwaukee, Wis.; C. L. Campbell, of Hartford, Conn., and D. A. Hulcy, Dallas, Tex. Honorable mention in connection with the 1940 award goes to E. Carl Sorby of the George D. Roper Corp. for his excellent work in promoting the use of the gas range.

Mr. Russell, who was president of the American Gas Association in 1936-37, has devoted most of his professional and business career to gas and electric public-utility industries. A graduate of the University of Michigan in 1898, he took up postgraduate work in chemical and gas engineering, receiving his master's degree in 1900 and winning the first scholarship established by the Michigan Gas Association.

He entered the public-utility business immediately on leaving college and advanced steadily in his work, first for the Detroit Gas Co., then the San Francisco Gas & Electric Co. and later for the gas company in Cincinnati, Ohio. In 1905, he became assistant superintendent of the gas works of Rochester Railway & Light Co. and remained with that company and its successor, the Rochester Gas & Electric Corp. until the present. He was made superintendent of gas manufacturing in 1906, assistant manager in 1914, general manager in 1919, vice president and director in 1922 and president, director and general manager in 1929.

Three Large California Gas Utilities Plan Merger

LOS ANGELES, Calif.—Plans for the merger of the Southern Counties Gas Co. and Santa Maria Gas Co. with the Southern California Gas Co., involving more than $165,000,000 of gross plant-property accounts, have been announced by F. S. Wade, president of the latter utility. The merger, which must await submission to and approval of the California Railroad Commission, is expected to be of financial advantage and to simplify operations. The consolidation will result in the formation of one of the largest natural-gas distributing utilities in the nation, with annual output of about 150 billion cubic feet of gas.

Once regulatory approval is obtained, corporate mechanics of the company will be comparatively simple. Pacific Lighting Corp. now owns all of the 80,000 shares of Southern Counties common, all of the 15,000 shares of the Santa Maria Gas Co. capital stock and all but 44 shares of the 1,152,000 shares of Southern California Gas common as well as 45,416 shares of the latter company's 942,988 shares of 6 per cent cumulative preferred.

"For a number of years the three companies, operating under a common ownership, have been closely coordinated as to their policies and practices," Mr. Wade said. "Consequently but few changes appear probable under the expected merger. The new arrangements are primarily for financial reasons. During recent negotiations which led to the successful sale of $30,000,000 of 30-year, 3¼ per cent bonds of the Southern California Gas Co., it became apparent that the future financial needs of all the companies of the group could be much better handled if there were only a single company."

Texas' Natural-Gas Output Increased During August

AUSTIN, Tex.—An increase in natural-gas production during August over the preceding month and over August 1939 was reported by the Oil and Gas Division of the Texas Railroad Commission last week. Natural-gasoline recovery and carbon-black production, however, declined from the July figures.

Natural-gas production averaged 4,166,264,000 cu. ft. during August, an increase of 103,584,000 over July and 1,061,053,000 cu. ft. over August 1939. Gasoline plants processed 2,360,346,000 cu. ft. daily, a decline of 71,157,000 cu. ft. from July, but up 174,312,000 cu. ft. over a year prior. Gasoline recovery amounted to 2,276,338 gal. daily, a decline of 42,371 gal. from July but an increase of 583,272 gal. from August 1939.

Carbon-black production was lower than the preceding month with an output of 1,276,260 lb. daily, a drop of 10,156 lb. It held above the August 1939 level of 1,113,177 lb. Carbon-black plants used 889,810,000 cu. ft. daily.

Pipe-line deliveries gained 124,520,000 cu. ft. daily over July to total 1,239,752,000 cu. ft. which was 79,453,000 cu. ft. greater than for August 1939.

Production during August included 2,300,906,000 cu. ft. of sweet gas, 697,507,000 cu. ft. of sour gas, and 1,156,876,000 cu. ft. of casinghead gas.

Saskatoon Franchise Extended

SASKATOON, Sask.—The Northern Natural Gas Co., wholly owned subsidiary of Franco Oils, which was planning to deliver natural gas from the Lloydminster field to Saskatoon by November 1, has been granted an extension of the time limit for 1 year. Difficulties resulting from the exchange situation prevented the financing of the project which was estimated to cost $5,000,000. The company expects to start work this fall on a 10-well drilling program.

Vegreville Gas Service

VEGREVILLE, Alta.—A natural-gas service for the town of Vegreville has been inaugurated by Northwestern Utilities, Ltd., of Edmonton. The project involved the laying of 19⅓ miles of 4½-in. line from the main transmission system at Holden and about 6½ miles of local distributing lines. The system will be supplied from the Viking and Kinsella fields in east-central Alberta.

Refinery News

New 2,500-Bbl. Skimming Plant Completed at Shelby, Mont.

SHELBY, Mont.—Test runs at Production Refining Corp.'s 2,500-bbl. topping plant here were started last week and when completed the plant will be placed on stream, processing about 1,500 bbl. daily. An Ethyl blending plant is under construction and will be completed within the next 2 weeks. Erection of 14,000-bbl. crude-oil storage has been completed and the company now has over 6,000 bbl. in storage. The refinery will operate on Kevin-Sunburst crude and will market a 72-octane leaded gasoline. Lawrence Medford was in charge of construction and will supervise the plant's operation.

Motor Fuels Completing Enlargement Project

LUBBOCK, Tex.—Enlargement and improvement of refining facilities at Motor Fuels Corp.'s refinery at Levelland, Tex., is expected to be completed this week. The project, involving an expenditure of about $100,000, consisted largely of increasing the plant's crude-processing capacity from 3,500 to 5,000 bbl., addition of a new fractionating tower and two new boilers, doubling of the plant's loading facilities and improvements to cracking equipment. The plant is receiving its crude-oil supply from the Slaughter field of Hockley County through a 35-mile 4-in. carrier.

Fairfield Shuts Down Illinois Refinery

MATTOON, Ill.—The Fairfield Refinery Co.'s 2,000-bbl. plant near Fairfield, Ill., shut down last week. The company did not announce when it would resume operation or whether the shutdown was only temporary. The plant was built a little more than a year ago and has been operating on crude oil from the Wayne and White counties area. The drop in crude production in the state has forced the price upward and little oil is available for the smaller refineries.

Natural Gasoline

Slight Drop Shown in August Natural-Gasoline Production

Production of natural gasoline decreased slightly in August 1940, according to the Bureau of Mines monthly report. The average daily production in August was 6,341,000 gal., as compared with 6,346,000 gal. in July. Decreases in the Appalachian, Panhandle and East Texas districts were about balanced by increases in Louisiana, Texas Gulf and Kettleman Hills districts.

Stocks continued to increase and on August 31 totaled 323,484,000 gal. This was 4,956,000 gal. more than on hand at the first of the month and 45,276,000 gal. more than those of August 31, 1939. A summary by states of production and stocks, in thousands of gallons, follows:

	August daily average production	Stocks	
		At refineries	At plants and terminals
East coast	.....	5,754	.....
Appalachian	4,463	924	6,806
Ill., Mich., Ky.	2,759	7,560	486
Oklahoma	33,739	3,696	33,178
Kansas	4,788	42	2,024
Texas	79,107	15,834	122,901
Louisiana	9,723	336	1,381
Arkansas	3,125	714	233
Rocky Mountain	8,347	5,754	2,203
California	50,509	111,930	2,028
Total	196,560	152,544	170,940
Daily average	6,341	.....	.....

Shipments to jobbers increased from 16,968,000 gal. in July to 18,018,000 gal. in August and exports reported to the Bureau of Mines from 5,250,000 gal. to 7,518,000 gal. The average vapor pressure for shipments to refineries and refinery-owned bulk plants increased and that for jobbers and exports decreased. The weighted average for the month was 17.7 lb., the same as in July.

Lesh & McCall Completing New North Texas Plant

WICHITA FALLS, Tex.—Full-scale operation of Lesh & McCall's new natural-gasoline plant in the Rogers & Rogers field, at the outskirts of Nocona in Montague County, North Texas, is expected to be started within the next week. The plant will have a daily gas capacity of about 15,000,000 cu. ft. and was erected at a cost of some $50,000. Although not yet fully completed, gas from the plant was turned into the city's main line on October 13; the City Gas Co. is to take about 1,000,000 cu. ft. daily of the plant residue for supplying the town of Nocona.

PROGRAMS AND MEETINGS

Entertainment Planned for Tulsa Meeting of A.I.M.E.

The Mid-Continent section of the American Institute of Mining and Metallurgical Engineers will be host for the annual fall meeting of the Petroleum Division, to be held at Tulsa, October 24, 25 and 26. Headquarters will be at the Mayo Hotel.

The program includes papers by well-known engineers on such timely subjects as retrograde condensation, capillarity in oil sands, subsurface engineering in recovery problems, oil-well cements, well shooting, temperature surveys, compressibility of reservoir rocks, and petroleum-engineering education.

A stag buffet smoker will be held on Thursday night, October 24, at the Tulsa Club. Friday afternoon all those registered and their wives will be guests of Frank Phillips at Woolorac ranch where a barbecue dinner will be served in the evening. Visitors remaining until Saturday afternoon will have the opportunity to see a football game between Tulsa University and Texas Christian University. A large block of seats has been reserved and tickets will be available at the registration desk.

Plans have been perfected for receptions for wives of visitors. A party is planned for late Thursday afternoon, October 24, to be followed by a dinner and social evening. It is planned also that a number of members and their wives will meet at a luncheon prior to the Tulsa-T.C.U. football game Saturday, October 26.

Los Angeles Nomads Hear Talk On Patagonian Operations

Charles Gill Morgan, who has conducted a great deal of geophysical work in South America, was the speaker at the October 9 meeting of the Los Angeles chapter of Nomads. He described recent operations in Patagonia, northern Argentina and Brazil, illustrating his talk with motion pictures. He also told members about the second Byrd expedition to Little America in the Antarctic, of which he was a member.

Due to the absence from the city of the president and vice president, the business meeting was conducted by Bill Bettis and the dinner session was presided over by Earl Rees. Elmer Decker, national president of the Nomads, proposed that the chapter conduct classes in Spanish since it is felt that a knowledge of and ability to speak that language will do much toward increasing the friendly relations with Latin Americans with whom the Nomads deal in their trips to South America. A committee has the matter under consideration.

Among the guests at the dinner were the following men from fields abroad:

R. E. Curran of Burmah Oil Co.; E. A. Kodyen of Papuan Anipiani Petroleum Co., Papua; E. M. Dovovan of Burmah Oil Co. at Digboi, Upper Assam; J. A. Thornton of B. P. M. at Curacao; W. H. Bush of Bahrein Petroleum Co.; J. S. Aston of Ultramar, S. A. P. A.; H. J. Cleave of Caribbean Petroleum Co. at Maracaibo; B. E. Ormsby of Texas Co. of Venezuela; and Phillippi Gordon of the Kern Trinidad Oilfields, Ltd.

A.S.M.E. to Devote Meeting To Rubber and Plastics

A series of meetings will be sponsored by the Subdivision on Rubber and Plastics at the annual meeting of the A.S.M.E. to be held at Hotel Astor, New York, during the week of December 2.

The papers to be presented at the rubber and plastics meetings, as well as the dates and times, are:

Session 1—December 5—9:30 a.m.

1. "Design and Application of Phenolic Resin Asbestos Compositions in Corrosion-Resistant Equipment," by W. H. Adams, Haveg Corp., Newark, Del.

2. "Rubber Springs—Compression Loading," by J. F. Downie Smith, Research Division, United Shoe Machinery Corp., Beverly, Mass.

Session 2—December 5—2:00 p.m.

1. "The Creep of Natural and Synthetic-Rubber Compounds in Shear," by Ivan Gazdik and S. H. Hahn, B. F. Goodrich Co., Akron, Ohio.

2. "Notes on the Creep of Neoprene in Shear," by F. L. Yerzley, Rubber Chemicals Division, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

Technical representatives of companies engaged in either the production or use of rubber and plastics are invited to attend these meetings.

Comprehensive Program Is in Preparation For A.P.I.'s 21st Annual Meeting

A thorough review of technological progress in every branch of the petroleum industry and a discussion of future problems and trends, coupled with comprehensive study of economic and other factors affecting the industry, are among the many features planned for the twenty-first annual meeting of the American Petroleum Institute, to be held November 11 to 15 in the Stevens Hotel at Chicago.

The preliminary program calls for two general sessions, eight group sessions, and nearly 100 committee meetings. In addition there will be the annual banquet of the Institute, annual meeting and banquet of the Twenty-Five Year Club, and annual banquet of the Institute of Petroleum. Although not scheduled on the program, informal receptions have been arranged for every evening, the hosts being various companies and organizations affiliated with the petroleum industry.

Six speakers will deliver addresses before the general sessions. The first general session will be addressed by Pres. Axtell J. Byles, Col. T. H. Barton, of Lion Oil Refining Co., El Dorado, Ark., and a third speaker whose name later will be announced. Speakers at the second general session will be William J. Cameron, of the Ford Motor Co., Detroit, Mich., Pres. H. W. Prentis, Jr., of the National Association of Manufacturers, and the Hon. Martin Dies, of Washington, D. C., member of Congress from Texas.

Committee meetings will be held all day Monday and Tuesday, although some committees will meet as early as Friday and Saturday. Group sessions will begin Tuesday afternoon and will be continued on Wednesday, Thursday, and Friday. Subjects of group sessions include automotive transportation, refining, production practice, drilling, pipe-line transportation, lubrication, and fuels, and engines.

The board of councillors will meet Wednesday morning, November 13, to nominate successors to 48 of the 55 members of the Institute's board of directors whose terms expire this year. The board itself will elect seven directors. Members of the Institute will vote on the nominations at the first general session.

The board of directors will hold meetings on Tuesday, Wednesday, and Thursday to conduct routine business, to elect officers, and to consider new business. The executive committee will meet on Thursday at the conclusion of the final session of the board.

CALENDAR

PETROLEUM DIVISION, A.I.M.E., Los Angeles, Calif., October 17-18.

AMERICAN WELDING SOCIETY, annual meeting in conjunction with National Metal Exposition, Hotel Cleveland, Cleveland, Ohio, October 20-25.

PETROLEUM DIVISION, A.I.M.E., October 24, 25, and 26, Tulsa.

WESTERN PETROLEUM REFINERS ASSOCIATION, regional technical meeting, Wichita, Kans., October 4.

AMERICAN GAS ASSOCIATION, Atlantic City, N. J., October 7-10.

NATIONAL SAFETY CONGRESS, Stevens Hotel, Chicago, October 7-11.

INDIANA INDEPENDENT PETROLEUM ASSOCIATION, fall convention, Hotel Severin, Indianapolis, Ind., October 9-10.

AUTOMOBILE MANUFACTURERS ASSOCIATION, Auto Show, New York, October 12.

SOCIETY OF AUTOMOTIVE ENGINEERS, annual dinner, Hotel Commodore, New York, October 14.

WESTERN PETROLEUM REFINERS ASSOCIATION, regional technical meeting, Shreveport, La., October 25.

TEXAS MID-CONTINENT OIL AND GAS ASSOCIATION, annual convention, celebrating Texas oil's forty-fifth birthday, Fort Worth, Tex., October 31-November 2.

SOCIETY OF AUTOMOTIVE ENGINEERS, national aircraft production meeting and engineering display, Hotel Biltmore, Los Angeles, Calif., October 31-November 2.

W.P.R.A. to Hold Last 1940 Technical Meeting in Shreveport, La.

The last of its 1940 technical meetings will be held by the Western Petroleum Refiners Association at the Washington-Youree Hotel in Shreveport, La., October 25.

The program is well balanced and is of general importance to refiners at this time. L. C. Burroughs, of Shell Oil Co., Inc., will give a paper on "Refinery Waste, Method of Prevention and Control." Mr. Burroughs is considered one of the outstanding authorities on this problem of the industry.

Another paper will be given by Dr. Gustav Egloff, of Universal Oil Products Co., on "Relationship of Coke and Fuel-Oil Production From Cracking Stills." Dr. Egloff is a world-recognized authority in the industry, and no one is better qualified to present this than he. This particular phase of refining has been given considerable attention by Dr. Egloff.

The third paper, "Cupric Chloride Slurry-Type Treatment of Cracked Distillates," is being given by Dr. R. G. Atkinson of the Shamrock Oil & Gas Corp. Dr. Atkinson has made a study of this phase of gasoline treating, having installed one of these units in their plant, and has followed the progress of this for some time.

Introductory remarks will be made by L. D. Mann, chairman of the manufacturing committee of the Western Petroleum Refiners Association, and the meeting will be presided over by R. T. Colquette, chief engineer of the Root Petroleum Co.

Texas Section, A.C.S., to Hear Purdue Professor Speak

PORT ARTHUR, Tex., Oct. 7.—Dr. Henry B. Hass, head of the department of chemistry, Purdue University, will be guest speaker for the autumn regional meeting and dinner of the Southwest Texas section of the American Chemical Society to be held at the Goodhue Hotel here October 17. Doctor Hass will discuss new developments in converting of inert constituents of petroleum into active compounds of great value in manufacture of dyes, drugs and other products.

Advance reservations for attendance at the dinner already are being made to Dr. F. W. Jessen, Humble Oil & Refining Co., secretary of the section. Dr. Ivan S. Cliff, Shell Oil Co., Inc., is section chairman; Dr. George R. Gray, Humble Oil & Refining Co., and Dr. Harry B. Weiser, Rice Institute, Houston, Tex., are counsellors. Both members of the group and nonmember chemists of the Gulf Coast are invited to the sessions. Membership includes 174 chemists representing 17 Gulf Coast counties.

Service on Active Fields

Falls City Pool, Richardson County, Nebraska

Compiled by The Oil and Gas Journal

Name of field

Falls City.

Geographical location

Proven area in Township 1n-16e, in southern Richardson County, the farthest southeast county in Nebraska. The proven area is about 3 miles north of the Kansas line and 12 miles west of the Missouri boundary.

Principal towns

Falls City, county seat of Richardson County, with a population of about 7,000, is some 3 miles northeast of the pool. St. Joseph, Mo., nearest large city, is 59 miles southeast of Falls City. Omaha, Neb., is 100 miles northward, and Lincoln, Neb., is about 105 miles northwestward.

Highways and roads

Paved U. S. Highways 73 and 75 traverse Richardson County, affording, with their connections, all-paved roads to St. Joseph, Omaha, Lincoln, and Kansas City. State and county roads connecting with these highways penetrate the oil country. Dirt roads in the Falls City pool are being graded and improved.

Railroads serving the area

The Missouri Pacific and Burlington railways serve the county with adequate loading and track facilities at Falls City, and afford easy rail access to the nearby cities.

Supply houses

Three supply companies have opened stores at Falls City, and other companies have representatives in Falls City, providing rapid delivery service.

Hotels and accommodations

Falls City has a four-story, modern hotel with coffee shop, dining room, and spacious lobby. There are other smaller hotels, rooming houses and tourist camps.

Schools and churches

An excellent public and parochial school system serves the Falls City area. All principal religious denominations have churches in Falls City.

DEVELOPMENT

The Falls City pool was discovered in November 1939 at Pawnee Royalty Co.'s No. 1 Boice, CSL N½ NE NE Section 18-1n-16e. Oil was found in Hunton lime at 2,276-92 ft. It was deepened to Viola lime at 2,911 ft., Arbuckle 3,268-3,300 ft., failed to develop commercial production and was plugged back and completed as a Hunton lime producer. The second producer to be completed, Pawnee's No. 1 Bucholz, C NW SW Section 17-1n-16e, qualified in July 1940, for the $15,000 state bonus for the first Nebraska well to produce a minimum of 50 bbl. daily for 60 consecutive days. It had Hunton lime at 2,217-32 ft. Development was slow getting under way after the pool was opened, due to a severe winter and lack of market outlet. Operations began to increase in the summer, however, the producing area was given several extensions to the south and southeast and by mid-October offset drilling was increasing. Early in October oil was found in Misener sand at Harper Oil Co.'s No. 2 Sibbernsen, SE NW NW Section 20-1n-16e. Showings of oil have been found in wells drilled to Viola lime, but as yet efforts to develop production in that horizon have been unsuccessful. Dry holes have been drilled east and west of the producing area, but there has been no limitation in other directions.

Active operations

Operations in the pool as of October 10 included one location, six rigs, and seven drilling wells and wells being completed. Several other tentative locations were due to be announced.

Lease ownership

Pawnee Royalty Co., owned by W. A. and B. G. Guinn, is the largest single leaseholder in the area, its holdings in Richardson County, Nebraska, and neighboring Brown County, Kansas, totaling about 80,000 acres. Other lease owners in the Falls City area include Skelly Oil Co., Harper Oil Co., Ohio Oil Co., Phillips Petroleum Co., Carter Oil Co., Magnolia Petroleum Co., J. N. Flanagan, C. G. Campbell, J. W. Perry, O. H. Schultz, Helen S. Morgan, L. H. Sparks, H. H. Watson, J. W. Peery, E. J. Shaffer, Kengar Petroleum Co., Max Kirk, C. I. Ross, O. E. Bradley, Black Gold Operating Co., Midland Oil Co., S. B. Miles, R. A. Heacock, K. F. Fitch, J. C. Denny, F. P. Hurst, Damon Smith, H. P. Taubman, E. V. Jackson, R. L. Campbell, H. H. Watson, J. A. Vickers. Numerous other operators have leases elsewhere in Richardson County.

Producing wells

The following producing wells had been completed or were being completed as of October 10:

Operator—	Location	Prod., actual or est.
Pawnee Royalty Co.'s No. 1 Boice	18-1n-16e	740 bbl., pump'g, flow'g
Pawnee Royalty Co.'s No. 1 Bucholz	17-1n-16e	375 bbl., flowing
Harper Oil Co.'s No. 1 Sibbernsen	20-1n-16e	750 bbl., flowing
Pawnee Royalty Co.'s No. 1 Keim	18-1n-16e	150 bbl., pumping
Skelly Oil Co.'s No. 1 Davisson	20-1n-16e	750 bbl., flowing
E. J. Shaffer's No. 1 Sandrock	20-1n-16e	750 bbl., flowing
R. L. Campbell et al's No. 1 Schock	20-1n-16e	500 bbl., flowing
Skelly Oil Co.'s No. 1 Wallraff	20-1n-16e	364 bbl., 14 hr., flow'g
R. L. Campbell et al's No. 2 Schock	29-1n-16e	60 bbl., 2 hr., swab'g; putting on pump
Harper Oil Co.'s No. 2 Sibbernsen	20-1n-16e	30 bbl. an hr., swab'g
Skelly Oil Co.'s No. 2 Davisson	20-1n-16e	600 bbl., est, putting on pump
Pawnee Royalty Co.'s No. 1 Sandrock	20-1n-16e	25 to 50 bbl. daily, flowing naturally
Pawnee Royalty Co.'s No. 2 Sandrock	20-1n-16e	22 to 25 bbl. an hr., flowing

GEOLOGICAL INFORMATION

Development of this pool has not been carried far enough to determine the important details of the local structure but, so far, it is indicated the structure is that of an elongated dome with a northwesterly-southeasterly axis, having a length of about 4 miles and width of about 2 miles. The total closure still is unknown but it is indicated as being more than 90 ft. On an east-west cross-section of the basin this structure lies at about the bottom, and immediately east, of the regional geosynclinal axis. The oil is produced from the top of the Hunton limestone, together with a local and varying thickness of the Misener sand, which immediately overlies the Hunton. The degree of productivity of the individual wells is determined by the local porosity of the upper Hunton beds which are composed almost wholly of siliceous, dolomite, or dolomitic limestone; this porosity is erratic in its distribution and in one instance more than 75 ft. of these beds has been found to be variably petrolific.

DRILLING CONDITIONS

Derricks

Rotary derricks generally are used, although one cable-tool outfit is running on an outlying location. Some operators use 84-ft. derricks, others 96-ft. derricks, conventional, steel types, with 24 to 30-ft. bases, and no substructure. One jack-knife, collapsible outfit is being used. Slim-hole rigs are capable of doing the work in this area.

Types of drilling equipment

Kind of drilling equipment varies according to preferences of individual operators. Most of the drilling contractors brought to this first Nebraska field such equipment as they had available in other areas, and as yet there has been little standardization. A majority use 4-in. drill pipe. One contractor uses a specialty rig, another a cardinal unit; all are medium light. There is one heavy diesel engine in service and some other diesel engines are being used, but a majority use butane fuel. They are of various makes.

Speed and cost of drilling

From 12 to 15 days usually are required to rig up, drill, and complete a well. Barring delays, operators can complete two wells a month. It usually requires about 2½ days to erect derrick, rig up and set surface casing, and an additional 24 hours for cement to set. After starting under the surface pipe, the driller usually is coring

pay at 2,200 to 2,300 ft. within 5 to 8 days. After setting casing, rotary is replaced by cable tools with which the well is drilled in. Contract prices range from $2.75 to $3.25, with cost of the completed well averaging about $15,000.

Casing program

It is customary to set about 100 ft. of 10-in. surface pipe, with 7-in. or 7¾-in. casing set on top of Hunton lime. Operators commonly drill in 8¾-in. hole.

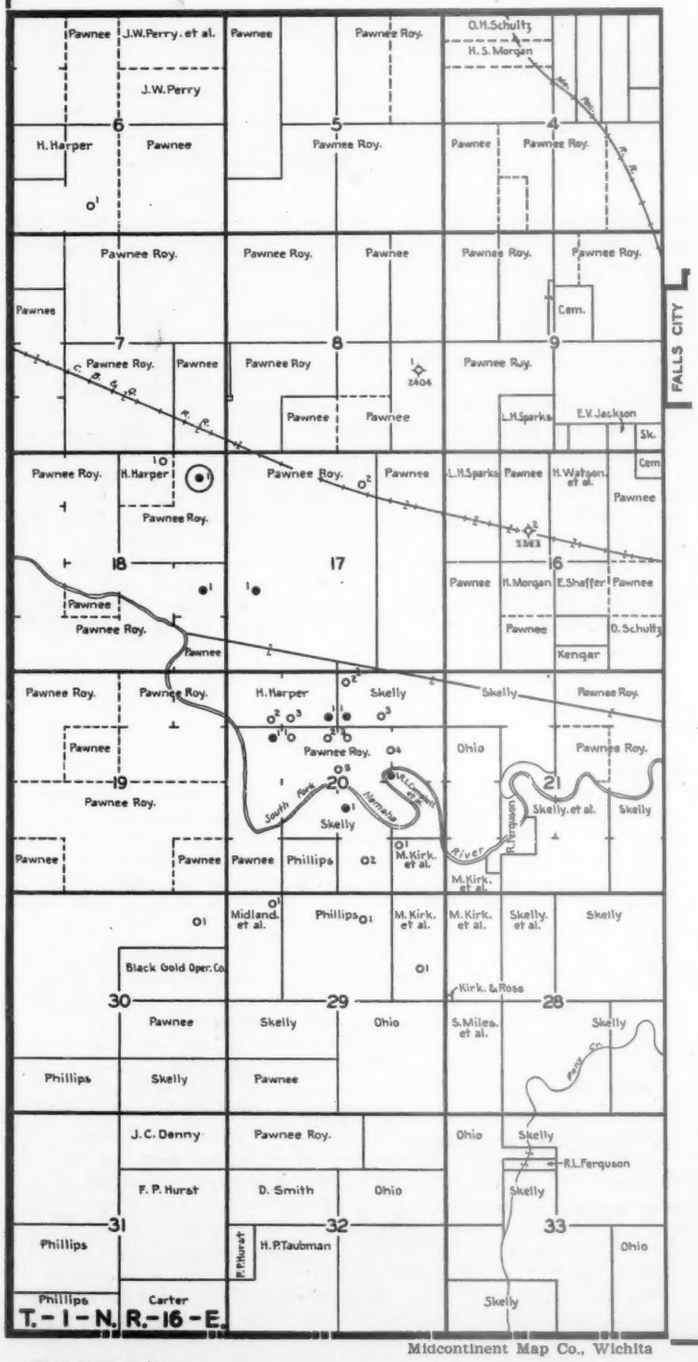
Type of bits used

Rock bits are used all the way, averaging about seven to the well.

Completion methods

Wells are completed with cable tools. A majority flow naturally, but this is strictly a water-drive area, there being low pressures and very little gas. The discovery well was drilled with cable tools all the way to the Arbuckle and plugged back to complete in Hunton lime. The Shaffer Sandrock well was drilled to Viola lime, set casing on top of Viola, and plugged back to complete in Hunton.

Falls City pool, Richardson County, Nebraska



Midcontinent Map Co., Wichita

Hunton lime was cored all the way. Both the discovery well and Sandrock well had good showings of oil in Viola lime. All other wells have stopped in Hunton lime, which usually is cored part way.

Acid treatment

It is the custom to acidize Hunton lime before completing. Between 1,000 and 4,000 gal. usually suffice, although in some instances greater amounts may be necessary.

PRODUCTION PRACTICES

Method of producing oil

Three wells were completed as flowing wells, and the Pawnee Bucholz well has been flowing since last May 10, but operators expect to put it on the pump soon. Although most of the wells flow initially, they soon subside and are put on the pump. Small 15-hp. pumping engines are used, with diesel or gasoline engines attached. Various types of casing pumps and 2¾ to 4-in. working barrels are used.

Tankage

It is the custom to install one 500-bbl. and two 250-bbl. tanks to a well. No separators have been used as yet.

Water conditions

Low, flank wells make a little water from Hunton lime. Heavy water present in the Pennsylvanian horizon is cemented off with 7-in. casing. Wells drilled to the Viola found water with a high sulfur content about 70 ft. from top of that formation.

GENERAL DATA

Elevation

Elevation of a majority of the wells is around 894-900 ft.

Spacing

There is no set spacing program, although development originally was planned on a 40-acre pattern. Irregular tracts along the Nemaha River, which runs through the field, necessitated some 10 and 20-acre locations.

Water for drilling

In the lowland areas 50-ft. water wells are drilled. In higher sectors, operators haul in water or pump it from springs. Supplies are adequate.

Market outlets

Bell Pipe Line Co. and Independent Pipe Line Co. are laying gathering systems in the field. Oil is shipped by tank car or in trucks to refineries at Omaha and Kansas City, or to pipe-line connections. Union Pipe Line Co. is buying some oil. Plans are under way for erection of two or three refineries.

Crude-oil analysis

An analysis of oil from the Hunton lime, as made by the U. S. Bureau of Mines:

GENERAL CHARACTERISTICS

Specific gravity, 0.866 — A.P.I. gravity, 31.9°
Sulfur per cent, 0.37 — Color, greenish black
S. U. viscosity at 77° F., 125 sec.; at 100° F., 84 sec.

DISTILLATION, BUREAU OF MINES HEMPEL METHOD

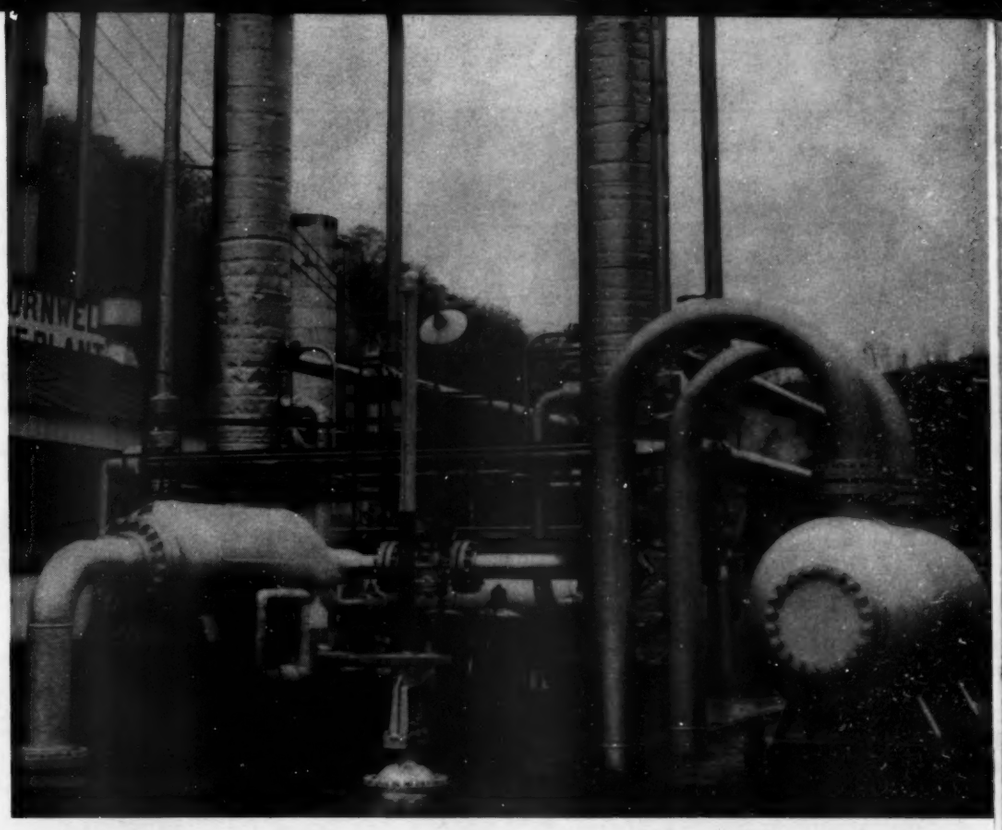
Distillation at atmospheric pressure, 749 mm.
First drop, 94° C. (201° F.)

Cut at °C.	Cut at °F.	Per cent	Sum per cent	Sp. gr. 60/60° F.	A.P.I. 60° F.	S. U. visc. 100° F.	Cloud test °F.
50	122	..	....	.....	...	...	...
75	167	..	....	.....	...	...	...
100	212	0.1	0.1	0.647	87.2	...	...
125	257	1.0	1.1	0.694	72.4	...	...
150	302	1.8	2.9	0.721	64.8	...	...
175	347	2.9	5.8	0.741	59.5	...	...
200	392	4.0	9.8	0.755	55.9	...	...
225	437	4.3	14.1	0.769	52.5	...	...
250	482	6.2	20.3	0.782	49.5	...	...
275	527	8.1	28.4	0.794	46.7	...	...
Distillation continued at 40 mm.:							
200	392	5.9	34.3	0.814	42.3	39	20
225	437	9.5	43.8	0.826	39.8	42	35
250	482	6.7	50.0	0.842	36.6	49	50
275	527	5.2	55.7	0.862	32.7	68	60
300	572	6.1	61.8	0.880	29.3	100	80
Residuum		38.0	99.8	0.956	16.5	...	...

Carbon residue of residuum 10.4 per cent; carbon residue of crude 4.0 per cent.

APPROXIMATE SUMMARY

	Per cent	Sp. gr.	°A.P.I.	Visc.
Light gasoline	0.1	0.647	87.2	.....
Total gasoline and naphtha	9.8	0.737	60.5	.....
Kerosene distillate	18.6	.784	49.0	.....
Gas oil	19.2	.826	39.8	.....
Nonviscous lubricating distillate	9.8	.843-.875	36.4-30.2	50-100
Medium lub. distillate	4.4	.875-.890	30.2-27.5	100-200
Viscous lub. distillate	.....	.....	.....	Above 200
Residuum	38.0	.956	16.5	.....
Distillation loss	0.2	.....	.....	.....



Through use of gas holders, the manufactured-gas industry is enabled to meet problems of peak-load demands, but the natural-gas industry must depend largely on the storage capacity of its transmission systems. At Cleveland, Ohio, a liquefied natural-gas plant is now under construction at which the liquefied product will be stored and then withdrawn during high-demand periods. (A description of this unique commercial plant and details of a pilot plant's operation are given in this issue beginning on Page 48.) The accompanying photograph shows high-pressure facilities in Hope Natural Gas Co.'s Cornwell station, Corton, W. Va., for dehydrating the gas before it enters the company's system. The pilot-plant operations were carried out here.

ENGINEERING & OPERATION

In This Section

OCTOBER 17, 1940

FIELD APPLICATION OF TOOL JOINTS
By Harry F. Simons ..... Page 46
When first introduced, tool joints were placed on drill pipe in the field but experience soon showed this practice induced tool-joint failures so that the joints were installed at mills or qualified machine shops. A method used by one company for installing new joints on used pipe in the field is described here. On one string of pipe the operator removed and replaced 119 old sets of shrink-thread tool joints in 54 hours.

LIQUEFACTION, STORAGE, AND REGASIFICATION OF NATURAL GAS
By J. A. Clark and R. W. Miller ..... Page 48
In solving peak-load demand problems, natural-gas companies have experienced greater difficulties than those utilities distributing manufactured gas. Hope Natural Gas Co., however, is constructing a commercial plant for storing liquefied natural gas at Cleveland, Ohio, as a means of solving a demand problem. A description of this plant and operations of a pilot plant are given.

ECONOMIC FACTORS IN CATALYTIC CRACKING
By Dr. J. S. Carey and H. W. Ortendahl ..... Page 55
With the advent of catalytic cracking additional concepts and variables must be dealt with that are not present in thermal cracking operations. Chief of these are catalytic activity, space rate, on-stream operating conditions, and regeneration conditions. These factors are discussed and a detailed economic study of the catalytic cracking process presented.

CHEMICALS FOR TREATMENT OF DRILLING FLUIDS
By C. F. Bonnet and B. N. Howell ..... Page 58
Complex phosphates and tannic-acid compounds are widely used for controlling viscosity, gel strength, and water loss in drilling muds. This article discusses properties and uses of chemicals.

SAFETY: Large Bellholes Aid Pipe-Line Welder ..... Page 52
MOVABLE CABINET AND TRAILER EXPEDITE HANDLING SAMPLES ..... Page 64
OPERATING IDEAS ..... Page 65
PROGRESS IN METALS—By W. L. Nelson ..... Page 66

Field Application Of Tool Joints

By HARRY F. SIMONS

Fig. 1—Layout at rig and light plant which is used to operate the electric wire buffing wheel. This rack was too low to permit easiest operation. Fig. 2—Helper cleaning the tool joints in gasoline, which removes the coating and evaporates quickly in the sun. Furnace is being heated with two bottles of liquefied petroleum gas. The tool kit is in the rear, out of the way, while several tools lie on the pile of new tool joints. Fig. 3—Welder cutting around the periphery of the tool joint, through the thick section. Note that he is keeping close to the shoulder of the pin so he will not cut the end of the pipe. This is important as the seal is located at this point. Fig. 4—Welder cutting notch for wedge, by cutting from the inside toward the outside. This is also made in order not to damage the seal. Fig. 5—Welder making longitudinal cut through the stub toward the notch close to the threads, but not touching the threads or seal. Fig. 6—Helper driving wedge in notch.

WHILE every effort is made to prolong the life of the tool joints originally installed on drill pipe, they sooner or later arrive at a condition where it is hazardous to run them in the hole. In areas where the formations are abrasive (such as Illinois), the tool joints will be worn to the danger point long before the drill pipe is ready for discard, making it necessary to replace the worn tool joints with new ones. In Illinois some strings of drill pipe have drilled in excess of 100,000 ft. of hole, but during this time they may have had as high as four sets of tool joints on them. A footage of 30,000 ft. per set of tool joints is considered good wear in the Salem field, especially on Devonian wells (3,500 ft.), 60,000 to 70,000 ft. on St. Louis and McClosky wells (1,700 to 2,100 ft.).

When first introduced, tool joints were put on the drill pipe in the field, but experience soon showed that this method induced breakoffs and other failures because there was no control over the amount of torque applied while tightening the joint on the pipe. This led to the installation of tool joints on pipe at the mills and in qualified machine shops only, and actual field application of joints was abandoned.

In recent months, a method has been developed for installing new tool joints on used pipe in the field. A recent application was on a string of drill pipe owned by the Robey Drilling Co. on the W. M. Stroupe lease in the Salem field. In all, 119 old sets of 4½-in. National F. H. shrink-thread tool joints were removed and replaced in 54 hours.

One of the principal factors affecting the successful field application of a screw-type tool joint has been the redesigning of the tool-joint-pipe connection. Shrinking, by utilizing the expansion and contraction of metal, of the tool joint on the pipe establishes a firm bond.

General Method Used

When new joints are attached to new pipe, a clean, undoped joint is screwed on the pipe hand-tight and reference-marked, then the joint is removed, placed in a furnace and heated to 650° F. It is then replaced on the pipe, screwed to the hot-position reference mark and then air-cooled.

Successful application of the joints in the field depends on a satisfactory furnace for heating the joints. Portable furnaces are now available which are fired by bottled gas and in which it is possible to control the temperature.

The furnace is of metal-plate and asbestos construction and is mounted on a firm base so it can be loaded on a truck and carried to the location; the total weight of the furnace is approximately 1,000 lb. Outside dimensions of the furnace are 3 ft. high by 3 ft. long by 2½ ft. wide, and it will hold four complete tool joints (eight boxes or eight pins). These joints are set in two compartments inside the furnace. There are two thermometers, one in the top of the furnace to register the heat of the compartment and the other, located at the side, to register the flue-compartment temperature. The tool-joint compartment thermometer will register 650° F.

Average Time Requirement

Average time required to connect the furnace once it is put in position on the location is 10 minutes. On the Robey Drilling Co. job it was installed in 5 minutes. As soon as the connections are completed, the furnace can be heated to the desired temperature.

Only other items of equipment necessary are pipe wrenches and chain tongs, special tongs for handling the heated tool joints, and a suitable pipe rack. In extremely bad weather a tent is erected over the furnace to help keep the correct temperature and to enable the men to continue the application under protection.

On the Robey Drilling Co. job the pipe rack was made from old sills. The length was 45 ft. long, although 60 ft. is preferable. This is so the job can be completed sooner by placing more pipe on the rack at one time. This also gives the welder a chance to complete his part of the job in less time and permit the others to work without hindrance. The furnace was located near the rack so the pipe could be rolled to within 4 ft. of it, the cold joint screwed on, marked off for proper advance, re-

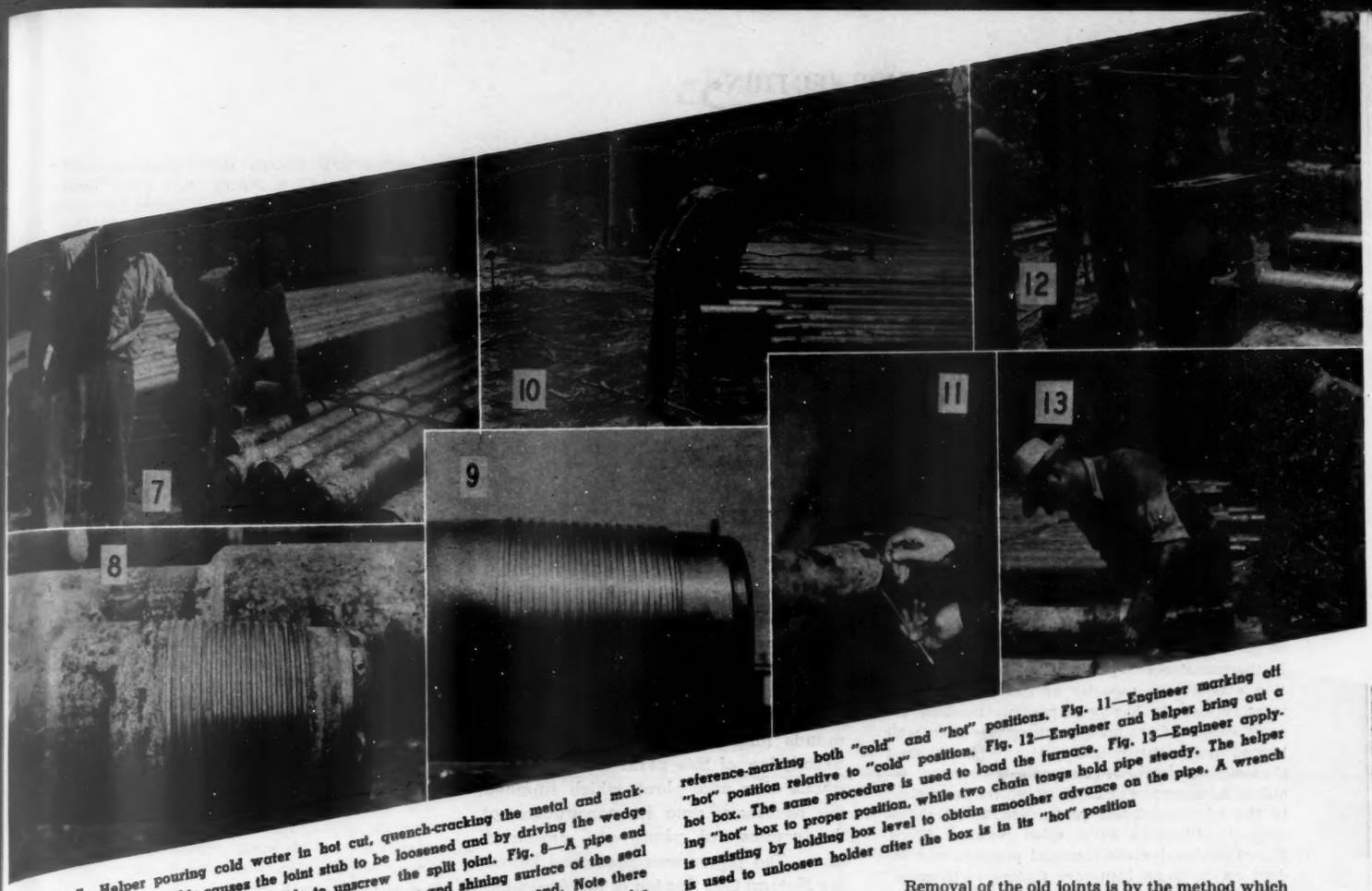


Fig. 7—Helper pouring cold water in hot cut, quench-cracking the metal and making it split open. This causes the joint stub to be loosened and by driving the wedge in a little farther, the welder is able to unscrew the split joint. Fig. 8—A pipe end displaying mud-coated threads, but observe the clean and shining surface of the seal near the end of pipe. Fig. 9—Displaying a clean and polished pipe end. Note there are no damaged threads or seal. Fig. 10—Helper applying a cold tool joint for reference-marking both "cold" and "hot" positions. Fig. 11—Engineer marking off "hot" position relative to "cold" position. Fig. 12—Engineer and helper bring out a hot box. The same procedure is used to load the furnace. Fig. 13—Engineer applying "hot" box to proper position, while two chain tongs hold pipe steady. The helper is assisting by holding box level to obtain smoother advance on the pipe. A wrench is used to unloosen holder after the box is in its "hot" position

moved, heated and replaced with a minimum of effort.

Handling of the hot joints is facilitated by the special tongs. This tong or holder is made from a ring of steel with the inside diameter larger than the outside diameter of the tool joint, whether 5¾-in. or 6-in. o.d. Handles are placed at 180°, opposite to each other. One handle is welded on while the other is screw type so that it can be tightened on the outside diameter of the joint.

Total elapsed time for installing the 119 complete joints on the job was 54 hours. This, of course, means two separate operations for the installation of each joint, as the box and pin comprising each joint must be installed separately. A single pin or box may be completely installed in as little as 8½ minutes and a full furnace (eight joints) installed in 69 minutes; this includes loading time, heating time, and application time.

Personnel Required

The crew used for installing the joints consists of a pipe engineer and his helper and a welder and helper. If two furnaces are used on a job, two more helpers are required. This cuts the installation time in half. By proper organization, each man is kept busy and there is no lull or waiting in the work. While a furnace load of joints is being brought to the proper temperature, the joints in the next furnace load are being put on and reference-marked.

The complete operation for installing a tool-joint box (or pin) is as follows: The threads on the pipe are cleaned and inspected for any rough threads or other defects which should be repaired, the cold tool-joint box is then screwed on the pipe "hand tight" and a cold and hot-reference mark placed on it. The box is then removed and placed on the diffuser plate in the furnace and heated to 650° F. with time required for this purpose being about 1 hour. The box is then removed from the furnace by means of the special handling tongs. The hot tool-joint box is screwed on the pipe immediately by means of the holder and hand power to where the tool joint passes the "cold position" mark and advances to the "hot position" mark.

Distance between the cold and hot-reference marks is about five-eighths of a turn. This is the distance traveled beyond that attained when screwing the cold joint on to cold pipe; when the tool joint contracts while regaining its normal temperature, it is actually shrunk on to the pipe. There is no tendency for the joint to creep while in service and it is impossible to unscrew it unless unusually high torque (in the neighborhood of 18,000 ft.-lb.) is applied.

Advantages of Method

One of the principal advantages of installing the joints on the pipe in the field is the saving of transportation costs and time. Work on a rig could be delayed if it was necessary to wait for the pipe to be hauled to a shop and new joints installed but the drilling operation can continue uninterrupted if the joints are put on in the field. Spencer-Harris Machine & Tool Co., at Salem, Ill., has performed three field jobs this year in Centralia and Salem fields. A price of about $3 to $4 covers the complete job of removing and replacing a complete set of tool joints (box and pin) on a joint of pipe.

The contractor having this work done must do a certain amount of work on his part which is as follows:

1. Build a 60-ft. rack, about 3½ ft. high, out of old sills off to one side of his rig.
2. Convey his pipe to this rack from his rig rack.
3. Convey new tool joints from store to location, also furnace and equipment on same load.
4. After job is completed, convey furnace and equipment back to place where picked up.

Removal of the old joints is by the method which has been in use in the oil field for a number of years. The pipe is placed on a rack of suitable height and a welder using an acetylene torch removes the old tool joints in the following manner:

1. The first step is to burn a circumferential cut through the thick section of the tool joint, approximately 1½ in. beyond the end of the pipe.
2. A notch, approximately 1¼ in. long, is burned through the tool-joint stub. This notch is for a wedge which will be used in splitting the tool joint.
3. Only one longitudinal cut is made from tool-joint shoulder to notch without burning completely through to thread or seal.
4. A chisel wedge is driven in notch and cold water poured into the hot cut, which quench-cracks the stub. The wedge, driven deeper, completely loosens tool-joint stub.
5. The loosened, split, tool-joint stub is easily unscrewed and completely removed, without damage to drill-pipe threads or seal.

The pipe threads are then cleaned with an electric wire buffing wheel. The pipe is then ready to have the new joint installed on it as previously described.

●

New Illinois Maps Available

The Illinois Geological Survey, Urbana, Ill., now has available new oil and gas-development maps as of September 10, 1940, of the following areas: Benton, Townships 4-6s, Ranges 3-5e; Carlyle, Townships 1-3n, Ranges 2-4w; Greenville, Townships 4-6n, Ranges 2-4w; Mount Vernon, Townships 1-3s, Ranges 3-5e.

Revised maps of the following areas are also ready for sale: Albion, Townships 1-3s, Ranges 9e-14w; Fairfield, Townships 1-3s, Ranges 6-8e; Olney, Townships 4-6n, Ranges 9e-14w; Patoka, Townships 4-6n, Ranges 1w-2e; Roaches, Townships 1-3s, Ranges 1w-2e.

Blueline prints of these maps may be obtained by sending 60 cents each to cover printing and postage to Enid Townley, map agent, 100 Natural Resources Building, Urbana.

Liquefaction, Storage And Regasification Of Natural Gas

By J. A. CLARK and R. W. MILLER
Chief Engineer Research Director
Hope Natural Gas Co., Pittsburgh, Pa.

A commercial plant is now under construction at Cleveland, Ohio, for storing liquefied natural gas during periods of low demand in order that peak-load demands might be more easily met. A description of this plant and the operations of a pilot plant, which supplied the necessary data for construction of the commercial plant, are presented here. The paper was presented before the Natural Gas Section of the American Gas Association at its annual meeting in Atlantic City, N. J., October 7-10. Preliminary plans of the project appeared in the May 9, 1940, issue of The Oil and Gas Journal on Page 18.

THE problem of how to meet peak-load demands in the gas industry has been pertinent to gas executives and engineers for many years. In the manufactured-gas industry, when consumption exceeds the capacity of gas-making equipment, it usually has been possible to draw reserve supplies from low-pressure gas-holders, well located in the distribution system. When demand slackens, the excess of gas produced over that required by consumers can be stored for some time in the aforementioned gas-holders, to be subsequently withdrawn as occasion requires. Such procedure has become standard practice, and indeed serves as an insurance feature to those responsible for continuous service to the public.

Natural-gas companies have experienced greater difficulties in solving peak-load demand problems than those utilities distributing manufactured gas. The reason thereof is immediately apparent, when one considers, first, the great distance generally existing between the source of natural-gas supply and the consuming center, and second, the fact that the two must be joined by a pipe-line system sufficient in size to deliver adequate fuel for customer use at all times.

In the northern states, during the warmer months, the pipe-line system operates at only part of its capacity, result being that many wells are shut in at that time and various compressing units are inoperative. The system is not called upon to deliver the amount of natural gas for which it was designed until on the coldest days of the winter, when all available wells are turned into the gathering lines and all compressors are in use. If the cold spell is prolonged or extremely severe for 3 or 4 days, customer demand may equal or even exceed the capacity of the system to deliver. It is then that some extra gas from nearby storage would be a boon to the utility.

Adequate storage of natural gas, however, presents a somewhat complicated picture, attended by difficulties which have not been easy of solution. Low-pressure natural-gas holders located in proximity to gas-consuming centers have never been extensively used, principally on account of the fact that for natural gas their capacities are limited and their cost prohibitive.

This situation exists due to the fact that the natural-gas load is extremely variable, caused principally by a high percentage of that load coming from house heating, which is directly dependent on the weather. The manufactured-gas industry has been able to correct this variable-load curve by the use of large gas-holders, but the natural-gas industry has always handled quantities of gas too large to make the same method practicable. Industrial and commercial demands are not greatly affected by extremely low temperatures, but as those demands always exist, irrespective of climatic conditions, same must be satisfied, even at a time when human comfort appears of paramount importance.

Generally speaking, the pipe line has been the gas-holder of the natural-gas utility. In former times, natural gas has been stored in the pipe line by the simple expedient of raising pressures therein during the night to the limits allowable, if necessary, so that the gas thus stored could be available on the following day, when demand arose, which, if severe, may exceed for several hours the capacity of the entire system, as shown by continuous main-line pressure drops. Such pipe-line storage as described is indeed helpful to the operating personnel, but it has become increasingly evident to them that such a method is not entirely successful under all conditions.

At least one gas company has attempted the solution of its storage problem by the installation of high-pressure tanks at the edge of the consuming center. Natural gas from the pipe line is pumped into these tanks at off-peak times, to be removed therefrom when needed. As with the low-pressure gas-holders, we believe the cost of high-pressure storage to be excessive, if large volumes of natural gas are involved.

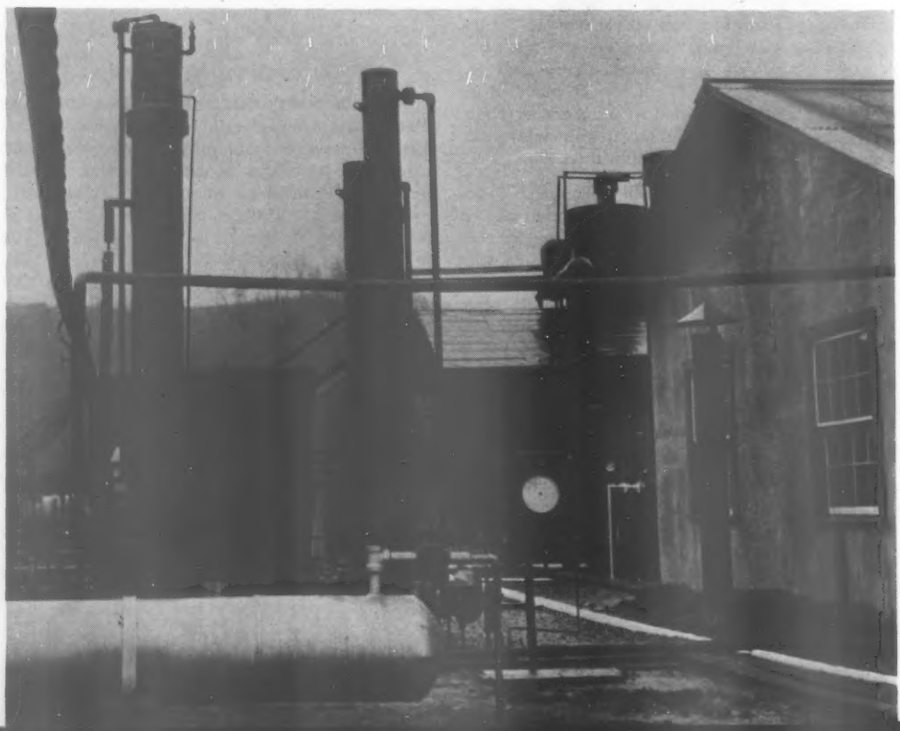
Use of Underground Storage

Other natural-gas companies have very successfully stored natural gas underground, making use of depleted gas fields, into whose gas sands have been pumped large volumes of natural-gas in the summer months when the pipe-line system was not being operated to capacity. Obviously, a compressing station is required for such an operation, as field-storage pressure soon exceeds pipe-line pressure. Also the necessity of controlling all leases is apparent. At times of peak demand, the natural gas can be withdrawn from the storage pool. Such procedure not only may completely solve the peak-demand problem, but it also contributes to less seasonal pipe-line operation, allowing larger volumes of natural gas to be handled in the warmer months.

If the natural-gas utility is so fortunate as to have its underground storage within a few miles of the consuming center and to have sufficient capacity therein for all emergencies, the situation may be considered well-nigh ideal, and the necessity of capital investment for additional pipe-line facilities is obviated. If the storage pool is available on the pipe line at a point three-fourths of the distance to the city, or even one-half, natural gas can be transported from the extreme end of the line in the summer and stored for future use.

It can be seen from the foregoing that adequate natural-gas storage adjacent to certain cities has become a problem to the natural-gas industry.

Pilot plant constructed at the Cornwell station, Corton, W. Va., of Hope Natural Gas Co.



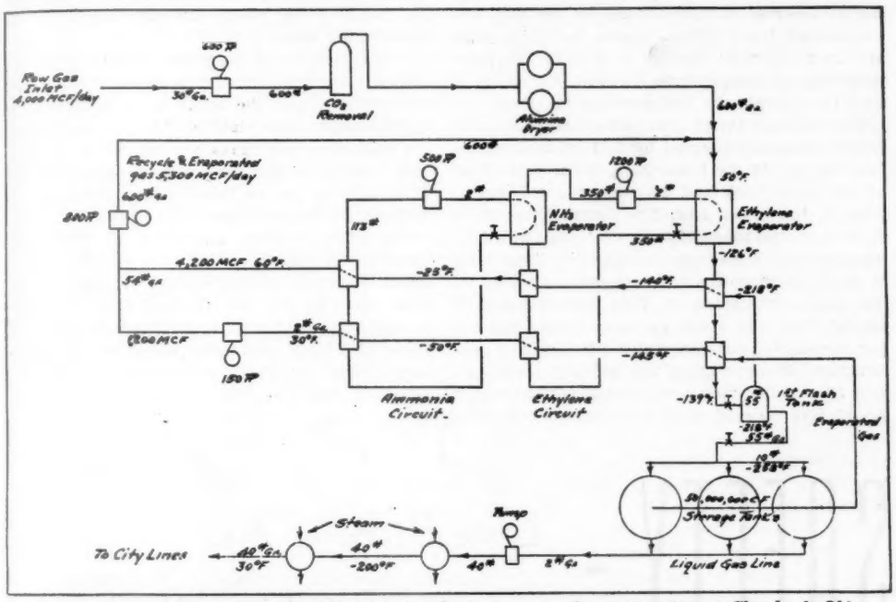
urgently in need of attention. Some type of storage was needed wherein the necessity of high pressures could be removed, the use of large containers rendered unnecessary, and the concentration of the maximum number of cubic feet of natural gas in the minimum space accomplished.

This belief was influenced to a great extent by the activities of the U. S. Bureau of Mines, first at Fort Worth, Tex., and later at Amarillo, Tex., where natural gas was liquefied in the process of helium production. Natural-gas liquefaction was an accomplished fact, but we were faced with its storage, whereas the bureau regasified the liquid immediately following helium extraction. We were intrigued to the greatest extent by the fact that 1 cu. ft. of liquid natural gas at atmospheric pressure will produce approximately 600 cu. ft. of free gas at ordinary temperature.

Late in August 1937 we began an intensive study of natural-gas liquefaction, its storage, and subsequent regasification. It was felt by all that the liquefaction of the natural gas itself presented no unsurmountable difficulties, as proven by the U. S. Bureau of Mines work already mentioned. The basic problem was to remove heat from the gas down to its boiling point at atmospheric pressure, and to reject it in some fashion to cooling water of approximately 60°. However, the storage of liquefied natural gas, whose boiling point is from —250° to —258° F., dependent upon composition, was the chief difficulty, entailing as it does the use of (1) special metal tanks, which would not shatter at the low temperature mentioned, and (2) some special type of insulation around the tanks which would prevent the too-rapid filtration of heat through the tanks and into the liquid gas, causing such excessive evaporation as to render the entire project not only unfeasible but prohibitive from an economic standpoint. Regasification following storage appeared not too difficult of attainment, although methods of handling the liquid at the low temperature caused some misgivings.

It was believed, once the problem of liquefaction, storage, and regasification of natural gas was solved, that it would be relatively simple to adapt the entire operation to the low-pressure distribution phase of a natural-gas utility. The plan called for the liquefaction of the natural gas at the edge of the city, using gas taken from the pipe line during the months of September, October, and November, when the system was not taxed to its capacity. The liquefied natural gas would be stored in special insulated tanks, to be withdrawn therefrom and regasified when need arose. It was realized that some gas would evaporate daily from the storage tanks, as some heat infiltration would always occur. This gas could either be reliquefied, or if the liquefaction plant was shut down on account of storage being filled, it could be fed directly into the city mains.

During some extreme period of low atmospheric temperatures, quite a volume of liquid gas would be removed from the storage tanks. This could be replenished, as experience has taught that there are many mild winter days, when the natural-gas pipe-line system is not taxed to capacity and gas can be withdrawn therefrom for liquefaction and storage. At the end of the winter season, whatever liquid gas remained in the storage tanks could be allowed to evaporate at will into the distribution system. The plant would then be idle until the following September.



Flow diagram of the main details of the commercial plant now under construction at Cleveland, Ohio

Experiments were made in the laboratory with a small tank, covered with 3 ft. of block insulation, in which thermocouples were installed at 6-in. intervals for temperature measurement. This tank was filled with liquid nitrogen, and refilled at intervals, over quite a few days, in order to attain a temperature equilibrium. From the amount of nitrogen evaporated and from the thermocouple readings, valuable information was secured as to heat infiltration and as to types and thicknesses of insulation. Also, the behavior of various metals at low temperatures was studied.

Finally, after considerable laboratory work and research, the choice of design for a liquefaction plant narrowed down to two methods. The first made use of an expansion engine, taking work out of high-pressure gas and exhausting this gas at a very low temperature, which could be utilized as a cooling medium for the high-pressure gas to be condensed. The second employed the so-called cascade system of removing heat in steps through the medium of three or four circuits, each using a different gas which would liquefy at successively lower temperatures and by exchanging heat between the circuits. Both ideas were workable, but finally the cascade idea was adopted and all work since was along that line.

By September of 1939, research work had progressed sufficiently far in the laboratory to warrant the erection of a pilot plant, wherein relatively large quantities of natural gas could be liquefied, stored, and regasified, making use in a practical way of the methods developed on a small scale, and whereby certain preconceived ideas could be tried out for the first time. We were particularly interested (1) in the actual performance at low temperatures of certain alloy-steel tanks, (2) in the type of insulation and its thickness, (3) in the evaporation rate of liquid natural gas, (4) in a method of handling whatever nitrogen was present in the gas and which would not be liquefied, (5) in methods of water vapor and CO_2 removal, and (6) in regasification.

Description of Pilot Plant

The pilot plant was erected at our Cornwell station and was designed to condense to a liquid 400,000 cu. ft. of natural gas per day, using three cascade steps. For the first step, ammonia boiling at —27° F., and isobutane boiling at +11° F. were considered, while ethane with a boiling point of —129° F., and ethylene, boiling point —152° F., were given consideration for the second step. The choice of ethane and isobutane would have been ideal, for all makeup could have been secured by fractionation of the liquefied natural gas. But as their temperatures did not work out so satisfactorily, ammonia and ethylene were finally chosen.

It was realized that early in the temperature drop, water and carbon dioxide would solidify and completely plug the tubes, so that they had to be removed at the very start of the process. For this a scrubbing plant using monoethanolamine and diethylene-glycol was first introduced, followed by two tanks filled with granulated aluminum oxide to remove the last trace of water vapor.

For storage, we used a horizontal symmetrical tank 10 ft. in diameter by 18 ft. long, holding 14,500 gal., equivalent to about 1,000,000 cu. ft. of gas. This was made of alloy-steel plates and was covered with 2 ft. of formed cork, cemented on and water-proofed with bituminous tar. At the Cornwell station, large quantities of 800 to 900-lb. gas, dehydrated to 30° F., were available, and also about 400 hp. of ammonia refrigeration. For the upper temperatures, conventional pipe and fittings designs for the various pressures were used, but as soon as —50° F. was reached, all pipes, valves, exchangers, etc., were made of either pure copper or stainless steel.

The plant was completed and put into operation the middle of January 1940. It took about 4 days running to chill all of the material before we began to get liquid gas, and then a 3-day run gave us our first tank—90 per cent full. We then shut the engines down and let this tank stand to get the rate of heat infiltration and we found a daily evaporation of about 28,000 cu. ft. of free gas. Later, we built several evaporators and finally developed a design so that we could evaporate the liquid as fast as it was condensed, allowing us to run constantly for several weeks at a time and get actual operating data.

We arrived at the following conclusions from the operation of the pilot plant:

1. The last possible traces of water and carbon dioxide must be removed, as failure to hold up the amine concentration at one time caused a 2-day shutdown due to plugging by CO_2 ice.

2. There is a continual increase in the per cent of nitrogen, oxygen, or any other gas noncondensable at the low temperature and these must be continually removed. We found that a surge tank, inserted in the gas line just after the ethylene condenser, where the gas is a liquid at 600 lb., with a bleeder to the engine fuel line solved this problem.

3. After going below —50° F., the pipe and tank steel becomes so brittle it is entirely unsafe. The metals which retain a safe Charpy impact-test value are, in the order of excellence, pure cop-

per, bronze, monel metal, red brass, stainless steel and steel plate with carbon content less than 0.09 per cent and nickel over 3½ per cent.

4. The best heat insulator we have found so far is cork, although something better may be discovered later. Formed cork was used on the pilot tank, but we found that loose granulated cork between two walls gave still better results and was much cheaper. However, this must be kept perfectly dry to function properly. We have found a conservative coefficient of heat transfer in B.t.u. per square foot per inch of thickness per °F. per hour to be 0.40.

5. The evaporated liquid has exactly the same analysis as the raw gas used as feed. However, the evaporation from the stored liquid is entirely methane and eventually if allowed to stand for long periods the liquid left will become increasingly higher in ethane-plus content.

6. At —250° F. the molecular activity of the liquid is so low that it is an excellent insulator for itself, and to transfer heat into it the liquid must be broken up into very thin layers and its velocity must be kept very high and turbulent.

After operating the pilot plant almost constantly for 4 months, it was found that practically all questions had been answered, and it was shut down and has since been dismantled.

Very shortly, however, an opportunity presented itself to use the knowledge gained in these experiments. The city of Cleveland is supplied with natural gas principally through four 20-in. and 18-in. lines from the Hastings station of the Hope Natural Gas Co., 150 miles distant. During January 1940 the cold waves which hit every gas company in the East made it very difficult to keep the supply ample, and by spring it was felt that something would have to be done to augment the available supply.

Commercial Plant

Plans already made called for an extension of a 12-in. high-pressure line to the city limits at a cost of approximately $2,500,000. However, after reviewing the work done at Cornwell and the plans and estimates based on these results, the officials of the gas companies involved decided that they could secure the same results by building a liquid-storage plant at a cost of roughly $750,000 and authority was given by them to go ahead with the plans. It is expected that this plant will be ready to operate by late fall, so that operations can be started and storage filled by Christmas, making it available for this winter.

This plant, which is shown diagrammatically on the accompanying flow sheet, will be able to condense 4,000,000 cu. ft. of gas per day and will have three storage tanks, each of 600,000 gal. capacity, equal to 50,000,000 cu. ft. of free gas, or a total storage of 150,000,000 cu. ft. The evaporators, which are steam-heated, have a capacity to regasify 3,000,000 cu. ft. per hour.

The feed gas will enter the plant from a city belt line at 30 lb. gage, and will be compressed by a 600-hp. engine to 600-lb. gage, then going through the scrubbing plant to remove all water and carbon dioxide, after which it goes to the ethylene exchangers with high-pressure gas on the inside and boiling ethylene on the outside, thereby chilling the gas to —126° F. and reducing it to a liquid. After further chilling in the two flash gas exchangers to —139° F., it is cracked through the first expansion valve into the first expansion tank at a pressure of 55 lb. gage. Here about half of it remains as a liquid, and the remainder goes back to be recompressed and processed over again. The liquid from this tank is then cracked through the second expansion valve directly into the main storage tanks at a pressure of 8 lb. gage, about 85 per cent of it remaining as a liquid for storage, and 15 per cent going into gas and being recompressed for further treatment.

The evaporated gas from the second stage, after passing through heat exchangers, is picked up and compressed to 55-lb. gage by a 150-hp. compressor. Here it joins the evaporated gas from the first-stage cracking, and the combined stream is taken by an 800-hp. engine and boosted to 600-lb. gage, being then put back into the raw-gas feed stream. This evaporated gas is practically pure methane.

The ethylene is contained in a closed circuit, where it is compressed, using 1,200 hp. at the flowing rate of 7,000,000 cu. ft. per day up to 340-lb. gage, and then is cracked through an expansion valve to 5-lb. gage, reducing the temperature to —145° F., which is used to condense the high-pressure gas.

The ammonia is also in a closed circuit, flowing at the rate of 3,750,000 cu. ft. per day, and compressed by a 500-hp. engine to 113-lb. gage, and then expanded through a valve to 3-lb. gage, reducing the temperature to —20° F., which is used to condense the high-pressure ethylene.

The storage tanks themselves are two concentric spheres separated by 3 ft. of cork insulation, formed in the lower half, to carry the load of the inner tank and its contents, and granulated in the upper half. The outer sphere is 60 ft. in diameter, made of tank steel and carried by legs down to a concrete footing. The inner tank is 54 ft. in diameter and supported entirely on the cork surrounding it. This tank is made of special steel with a 0.09 per cent carbon and 3½ per cent nickel content, and is of all-welded construction. In developing the welding technique, over 200 welding rods were tried to get one which would give a weld with a satisfactory Charpy impact test at —310° F., the temperature of liquid nitrogen, and the one finally selected was high in nickel and chromium.

The evaporation equipment consists of three pumps that pick up the liquid from the tanks and raise its pressure to about 40-lb. gage, the city belt-line pressure. The gas goes to a two-stage heat exchanger with gas on the inside of the tubes and steam on the outside. There was already installed on the plant site 1,400 hp. of boilers which required only reconditioning to be put into service. The first-stage heater has double tubes, the liquid passing first through a ¾-in. tube and then back between it and a 1-in. tube, exposing a very thin high-velocity stream to the heat. Thereby is added the heat of vaporization and the gas leaves at about —200° F. From the steam heater, it goes to a final four-pass gas heater, where its temperature is raised to about 30° F., before being passed through meters to the distribution lines.

The remainder of the plant consists of conventional water-cooling towers, water pumps, air compressors, and the other usual appliances of a gas-compressing station. All gas connections for normal temperatures are Van Stone on seamless steel pipe and ring-joint gaskets. But any line carrying gas or liquid colder than —50° F. is made of copper tubing with Van Stone joints, using bronze flanges and bolts. At every joint possible, automatic controls have been used to regulate pressure, temperature, volume, or engine speed so that the finished plant will have a minimum of manual supervision. Being in the heart of a large city, noise would be very objectionable, so all intake and exhausts have been equipped with the best mufflers possible to obtain.

SAFETY — Large Bellholes Aid Pipe-Line Welder

WELDING, the same as any other occupation, has its own peculiar hazards and precautions must be taken to prevent accidents or the recurrence of an accident. In a recent issue of the United Gas Log, J. J. Bartow, production department of that company, Refugio, Tex., points out the following rules for eliminating dangerous situations:

"Be sure that the bellhole is deep and wide enough to do the right kind of a job. In case of an accidental fire there is less chance for burns in a large bellhole. Always have a rope tied around your waist so you can be pulled out of the hole in an emergency; steps cut in the walls of the hole will aid in making a quick exit.

Never light the torch in the bellhole; light it at the surface and lower it into the hole as a test for gas.

"Concentrate on wearing goggles while the torch is lighted; never use matches to light the torch but use the standard lighter. Work with your back to the wind if it is at all possible. Wear goggles and gloves while using a wire brush.

"Use some kind of ear protection while welding underneath a line and have to lie under the work; a damp cloth covering the ear and side of the face is very helpful. Use a piece of canvas to avoid lying on the damp ground. If there is water in the bellhole, lay shovels or sharpshooters down to make a place to lie without getting into the water.

"When welding on a line that contains a large amount of gas, take time to cut a hole ahead of your weld and weld on a stub that will carry the gas out of the hole. This stub should reach at least 2 ft. above the surface of the ground.

"Up and down-hill lines accumulate fluid in the low places and vapors from this fluid travel up the lines to the high points. When a weld or cut is to be made on a line of this type, a hole should be cut in the low spot to allow the fluid to drain. This will help draw the vapors down to the low point away from the work. If welding has to be done where the fluid is leaking, wet clay should be packed over the hole or cut to prevent fires."

Economic Factors in Catalytic Cracking

By DR. J. S. CAREY and H. W. ORTENDAHL
E. D. Badger & Sons Co. Socony-Vacuum Oil Co., Inc.

W.P.R.A.—Presented before regional technical meeting, Wichita, Kans., October 4.

IN any discussion of catalytic cracking there are certain concepts to be explained before we can obtain a good basis for reaching a full understanding. Thermal cracking is now an old story, and while it may not be an exact science we have all had years of experience in operating these types of plants and there is an established nomenclature which allows a discussion with little misunderstanding. With the advent of catalytic cracking we have additional concepts and variables to deal with. The chief of these follow:

1. Catalyst activity.
2. Space rate.
3. On-stream operating conditions (temperature, pressure, etc.).
4. Regeneration conditions (amount of carbon to be removed, heat removal and the related temperature control).

For our use we are defining catalyst activity by results obtained upon a standard charging stock under standard operating conditions and when using a standardized type of laboratory pilot plant. It is an arbitrary measure but the results are comparative and furnish data which are useful during the catalyst manufacture and for the selection of a catalyst to give the optimum result in the plant. The phrase "optimum result" as used here will bear some explanation. It is used here in the economic sense as we can manufacture catalysts of extremely high activity which will give high yields of gasoline on a once-through basis, but economically they are of little value. This is due chiefly to our inability to regenerate, but also because low liquid recovery is obtained and the plant cost would therefore be excessively high. While gasoline yields in the laboratory of, say, 60 to 65 per cent on a once-through basis can be obtained on some stocks, our economic studies indicate that a commercial unit to obtain these results would be far beyond practical limits except under certain very favorable marketing or other circumstances. These would have to be quite different from the ones we are now experiencing.

Catalyst Activity

We are going to dwell a little further on this question of catalyst activity. Statements are made that certain catalysts have been developed that are twice or three times as active as another. These statements are meaningless until a standard method of measuring catalyst activity is generally recognized. Also, it must be shown that the catalysts can be regenerated under plant conditions. Samples of catalyst have been submitted to our laboratories by various chemical companies with the belief that they are more "active" but when subjected to our standard tests we find that no real economic improvement has been made, and, like our own, the activity has to be adjusted before they are commercially useful.

One factor that should also be clearly brought out is that of catalyst life. With use, the catalyst activity will decline and a high yield obtained by a laboratory test is not indicative of the yield to be obtained over a given operating period. It is believed, however, that catalysts can be improved and that higher yields of gasoline can be obtained with smaller percentages of gas and carbon produced. Some encouraging results along that line have already been obtained.

Space Rate

With a fixed catalyst activity, the space rate becomes the next prime factor. Thus for a given stock it is possible to vary the once-through gasoline yield over a wide range, the higher the space rate the lower the gasoline yield and gas make, but the higher the liquid recovery. This is the prime variable in selecting the most economical plant and very often the existing thermal cracking system can be the governing factor. Thus, where a refiner has a part of his thermal installation in good operating condition, the design space rate of the catalytic unit can be so set as to give him an amount of catalytic gas oil to profitably continue his thermal cracking operations. The catalytic plant on this basis would have a minimum capital investment.

A variation of this requirement is the refiner who has an increasing demand for No. 2 fuel oil and the production of that cut becomes one of the governing factors in the selection of the space rate. The other extreme would be a plant where no thermal equipment is available, in which case lower space rates may prove economical in order to give the maximum return per unit of catalytic-plant investment. If ultimate yield of gasoline is governing, this leads into a balance between new catalytic-plant investment plus new thermal-plant investment. If thermal equipment is to be dispensed with entirely the economics of recycling through the catalytic unit must be studied.

In the preceding discussion we are considering catalyst activity and space rate independently, but it is recognized that they are interdependent and this, of course, is particularly true of the conditions of temperature and pressure under which the plant is to operate. As catalytic cracking is conducted in the vapor phase, the high boiling-point charge stocks demand the highest temperature and the lowest reasonable operating pressure. For gas oils and distillates the temperature can be lowered, and within economic limits the catalyst activity can be raised to the optimum at which the catalyst can be regenerated. Pressure is a factor and related to catalyst activity, i.e., as activity drops through use, the yield can be maintained by a rise in operating pressure.

Considering the effect of these variables as outlined, we believe it is evident that no direct comparison can be made between a catalytic cracking unit and a thermal unit by simply taking data from typical installations. This is well illustrated by a group of five Houdry units, all of which have practically the same catalyst capacity, and which are running at space rates of from 1.9 to as low as 0.75. Yields on these plants vary from an average of 38 per cent once-through to as high as 50 per cent on the low-rate plant. As a matter of passing interest, the latter plant has completed a 200-day run which is believed to be an "on stream" record for a catalytic unit, at least, and possibly any cracking unit.

Laboratory Investigations

In order to picture the effect of catalyst space rate we have selected a typical laboratory investigation on a heavy gas-oil stock. This stock has the characteristics of a long residuum minus tar

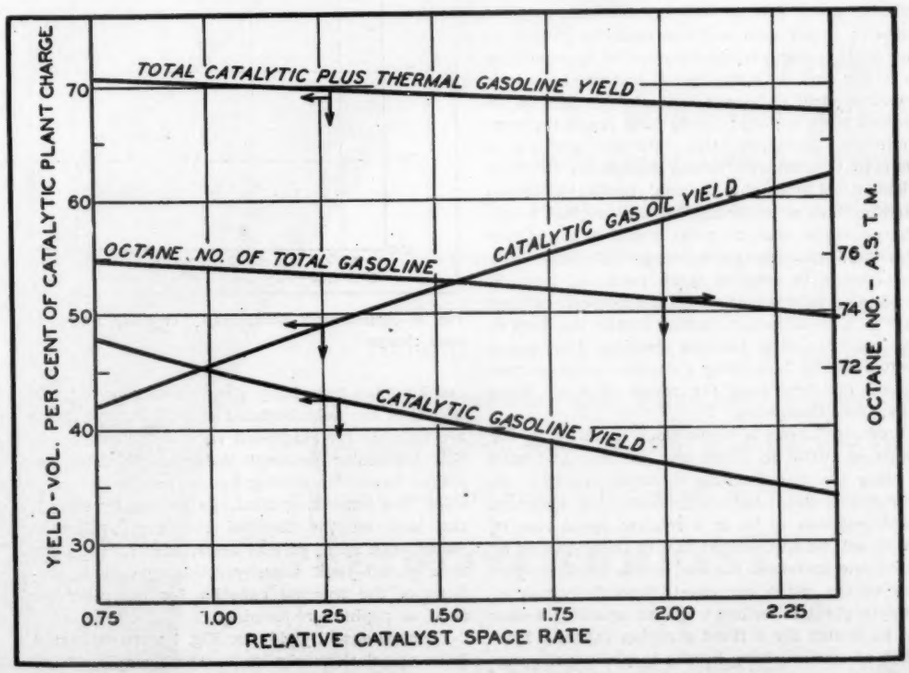
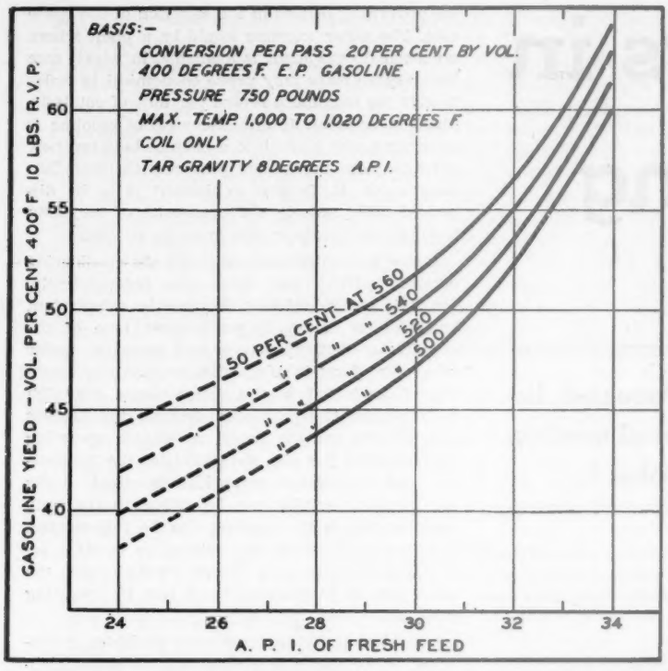
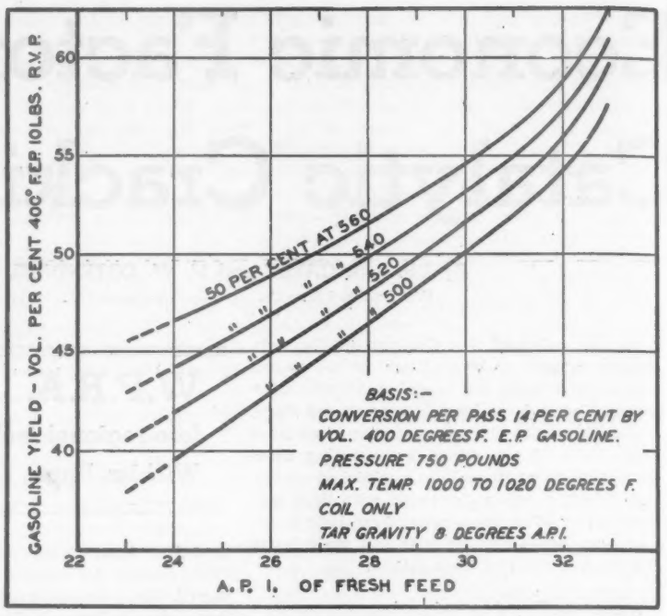


Fig. 1—Effects of catalytic space rates on once-through catalytic yields


BASIS:—
CONVERSION PER PASS 20 PER CENT BY VOL.
400 DEGREES F. E.P. GASOLINE
PRESSURE 750 POUNDS
MAX. TEMP. 1,000 TO 1,020 DEGREES F
COIL ONLY
TAR GRAVITY 8 DEGREES A.P.I.
GASOLINE YIELD – VOL. PER CENT 400°F 10 LBS. R.V.P.
50 PER CENT AT 560
" " 540
" " 520
" " 500
A. P. I. OF FRESH FEED


GASOLINE YIELD – VOL. PER CENT 400° F.EP. 10LBS. R.V.P.
50 PER CENT AT 560
" " 540
" " 520
" " 500
BASIS:—
CONVERSION PER PASS 14 PER CENT BY VOL. 400 DEGREES F. E.P. GASOLINE.
PRESSURE 750 POUNDS
MAX. TEMP. 1000 TO 1020 DEGREES F.
COIL ONLY
TAR GRAVITY 8 DEGREES A.P.I.
A. P. I. OF FRESH FEED

Figs. 2-3—Correlations of gasoline yields from thermal cracking of gas oils for conversions per pass of 20 and 14 per cent, respectively

or asphalt bottoms with A.S.T.M. boiling points as follows:

	°F.
10 per cent	530
50 per cent	677
70 per cent	738

When processed in two-coil thermal cracking equipment the gasoline yield is approximately 57 per cent. A complete investigation of the effects of catalyst space rates on once-through catalytic yields was made and the yields of liquid products are plotted against space rates in Fig. 1. In obtaining the yield data for Fig. 1, for each catalyst space rate investigated the proper catalyst activity had to be determined, i.e., an activity which would give the optimum average yields over the entire commercial life of the catalyst and at the same time permit regeneration under conditions practical for plant design.

Referring to Fig. 1, it will be noted that at a relative space rate of 0.75 the catalytic gasoline yield is 48 per cent and the catalytic gas oil 42 per cent, giving a liquid recovery of approximately 90 per cent. As space rate is increased catalytic gasoline yield decreases but catalytic gas oil increases more rapidly; hence total liquid recovery increases. Assuming the catalytic gas oil is charged to thermal cracking equipment the total yield of catalytic plus thermal gasoline is shown on Fig. 1 as a percentage of the original virgin charge to the catalytic unit. It will be noted that this total gasoline yield shows relatively little variation with catalyst space rate, i.e., from 71 to 68 per cent over the range of space rates shown in Fig. 1. In a similar manner octane numbers of the catalytic plus thermal gasoline blends are plotted in Fig. 1, showing a decrease of about two octane numbers over the range of space rates taken for illustration.

Predicated upon a virgin-stock quantity in the range of 10,000 to 15,000 bbl. per day and with existing thermal cracking facilities available, an overall economic analysis indicated the optimum plant selection to be at a relative space rate of 1.6. It will be appreciated that in these studies as space rate increased the cost of the catalytic portion of the plant decreased. Smooth curves of catalytic-plant investment against space rate cannot be drawn for a fixed charging capacity inasmuch as certain sharp breaks in plant cost occur at certain points due to technical considerations in the plant design. The erected cost of a catalytic unit for the optimum condition of this particular problem would be approximately $195 per daily barrel of catalytic-plant charge.

With respect to thermal cracking of the catalytic gas oil certain factors should be mentioned. The catalytic gas oils as derived from once-through

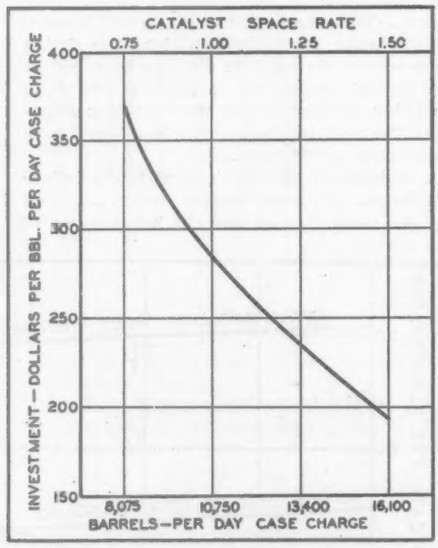


Fig. 4—Approximate plant costs per daily barrel of case charge

cracking are invariably clean stocks having end points in the neighborhood of 760 °F., and hence are suitable for single-coil recycling cracking. In this particular problem the original stock required two-coil cracking, hence the thermal operation has been simplified. As shown by Fig. 1, the load on the thermal cracking equipment varies with space rate as determined by the catalytic gas-oil yield, thereby releasing various portions of the thermal capacity for other service such as naphtha re-forming.

Thermal gas-oil yields for Fig. 1 were estimated from correlations similar to those employed for virgin stocks. In general, Houdry catalytic gas oils exhibit thermal cracking characteristics closely similar to virgin stocks of the same gravity and boiling range. Figs. 2 and 3 show correlations of gasoline yields from thermal cracking of Houdry gas oils for conversions per pass of 20 and 14 per cent, respectively. These correlations are based upon thermal pilot-plant evaluations of catalytic gas oils derived from Houdry cracking of stocks ranging from Mirando crude to Oklahoma City gas oil. The paraffinicity of the catalytic gas oil is determined by that of the virgin charge, hence catalytic gas oils derived from catalytic cracking of stocks such as Mirando would require thermal processing at conversions per pass of the order of 14 per cent or lower, while those from catalytic cracking stocks of the Mid-Continent type would permit much higher conversions per pass. All the thermal pilot-plant runs used in these correlations eliminated 8° A.P.I. cracked tar.

In the detailed economic study of space rate it should be noted that the A.P.I. boiling-point characteristics of the catalytic gas oil changes with the depth of the once-through catalytic conversion, i.e., at the lower space rates and higher gasoline yield both A.P.I. gravities and 50 per cent A.S.T.M. temperatures are lower. In the problem which has been under discussion this relationship is shown by the following:

Catalyst space rate	Catalytic gasoline yield, per cent	A.P.I. of catalytic gas oil	A.S.T.M. 50 per cent temp. of catalytic gas oil
0.75	48.0	27.3	562
1.50	41.0	29.0	583
2.00	37.0	29.7	592

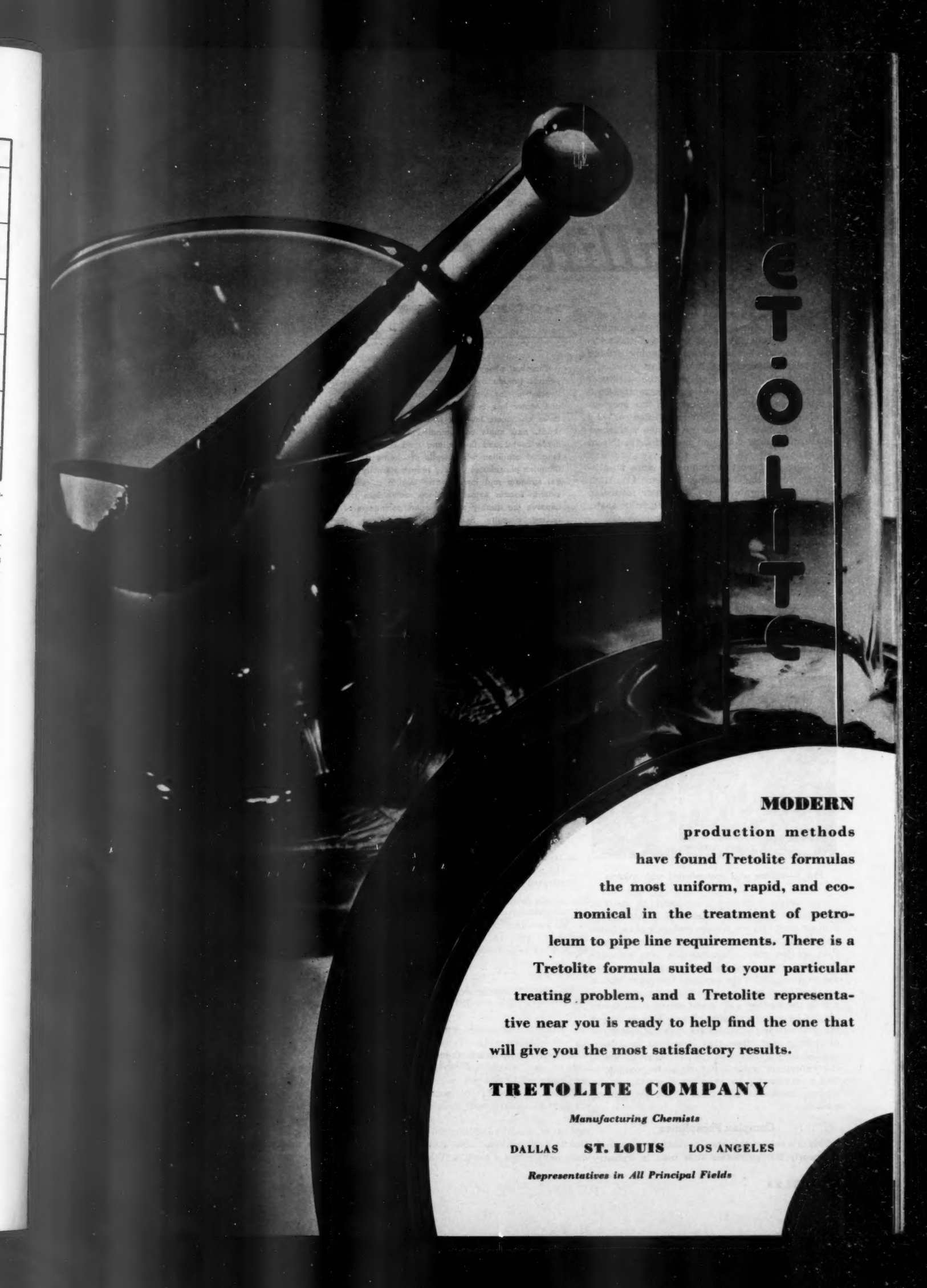
Relative Yields

In order that the refiner may make some overall economic comparisons we have attempted to give enough data hereinafter to allow a rough study of the individual case involving a Mid-Continent crude operation. This has been set up on an assumed crude breakdown as follows:

	Per cent by vol.
Straightrun gasoline	35.0
Kerosene	14.0
No. 2 fuel oil	4.5
Reduced crude	45.5
Loss	1.0
	100.0

Primary distillation may be conducted either in

(Continued on Page 61)



MODERN production methods have found Tretolite formulas the most uniform, rapid, and economical in the treatment of petroleum to pipe line requirements. There is a Tretolite formula suited to your particular treating problem, and a Tretolite representative near you is ready to help find the one that will give you the most satisfactory results.

TRETOLITE COMPANY

Manufacturing Chemists

DALLAS **ST. LOUIS** LOS ANGELES

Representatives in All Principal Fields

Chemicals for Treatment Of Drilling Fluids

By C. F. BONNET and B. N. HOWELL
American Cyanamid & Chemical Corp.

SUMMARY

Complex phosphates and tannic acid compounds (tannin extracts) are widely and effectively used for controlling viscosity, gel strength, and water loss in drilling muds. By the use of these chemicals low-cost fresh clays, hole-made muds, and muds contaminated in use can be made useful and the drilling mud can be kept in good condition while wells are being drilled. Complex phosphates quickly reduce viscosity and gel strength and lower water loss to a certain extent. Tannin extracts reduce water loss and improve the quality of mud cake, sometimes reducing viscosity. Sodium silicate reduces gel strength and under certain conditions lowers viscosity and water loss. Sodium bicarbonate restores cement-cut mud.

This paper discusses the properties and uses of the chemicals themselves. The way that these chemicals are actually used to meet field conditions will be discussed in another article in an early issue of The Oil and Gas Journal.

THE nature of chemicals used for drilling-mud treatment and how they affect the mud itself are subjects of interest because of the widespread use of chemicals in conditioning drilling mud for economical, fast, safe drilling.

During the drilling of oil wells, the quality of the mud in circulation changes constantly. Testing by methods like those described in a previous article—"Drilling-Mud Testing and Control"—by J. A. McDonough and C. F. Bonnet will show whether the mud condition is good or bad from day to day.

Drilling mud most commonly becomes unsatisfactory from the following causes: (1) High operating temperature. (2) Salt-water intrusion. (3) Drilling excessive amounts of bentonitic shale. (4) Gas cutting. (5) Cement cutting.

When tests show poor mud conditions, particularly when viscosity or water loss are too high, small quantities of chemicals, properly applied, will often quickly restore mud quality.

There are two classes of compounds that are particularly effective for treating drilling mud; the complex phosphates are especially good for lowering viscosity. At the same time, they have a beneficial effect on water loss. The tannins are very effective for lowering water loss and frequently have a beneficial effect on viscosity.

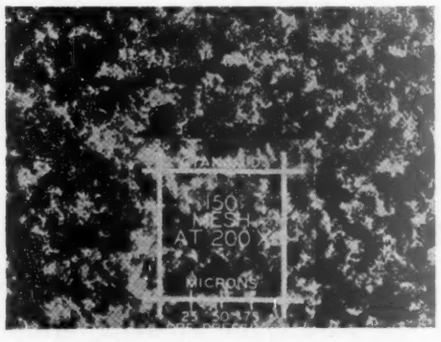


Fig. 1—Drilling mud contaminated with calcium

Under certain conditions it is possible to use only complex phosphates for maintaining satisfactory drilling mud. In other cases complex phosphates and tannin compounds are used together. When first applied, these chemicals are very effective in nearly every case, and only small quantities are required. With the repeated treatment that is required from time to time during the drilling of a well, the further addition of chemicals does not always have the expected effect. This is one of the problems in the successful chemical treatment of drilling mud. Now that chemicals have been applied for this purpose for a number of years, the experience gained has made it possible to find a relationship between the properties of the various chemicals and their effect on drilling mud.

Complex Phosphates

This is a remarkable class of compounds, known for nearly 100 years but little used in industry until recently. All sodium phosphates are white powders or glassy crystals and act as water softeners. The complex phosphates have additional properties of great value and only complex phosphates are useful in treating drilling mud to reduce viscosity and gel strength.

The difference between complex phosphates and ordinary normal phosphates is due to their structures. Using the symbols Na for sodium, P for phosphorus and O for oxygen, the formula and structure of trisodium phosphate follows:

Name	Formula	Structure
Trisodium phosphate	Na_3PO_4	NaO\ NaO-P = O NaO/

Phosphates with this structure are of little use in treating drilling mud and may be harmful.

The structures of complex phosphates may be illustrated as follows:

Common or trade name	Name	Formula
"Pyro"	Tetrasodium pyrophosphate pH 10.0	$Na_4P_2O_7$
"Quadrafos"	Sodium tetraphosphate pH 7.5	$Na_6P_4O_{13}$
"Calgon"	Sodium hexa-metaphosphate pH 5.9	$(NaPO_3)_6$

Only complex phosphates like these are useful for treating drilling muds, apparently because the groups of phosphorus atoms in this form become attached to the clay particles and hold them apart. The friction between clay particles is lessened and the viscosity of the mud is reduced because of less internal friction.

This effect may easily be seen by examining drilling mud under a microscope.

Fig. 1 shows drilling mud contaminated with a small amount of lime causing flocculation. The dark areas are clusters of clay particles. Friction between these clusters causes the mud to have high viscosity. The light areas are drops of water, nearly free from clay. This free water between clusters of clay particles is easily filtered off into the formations and is the water which is lost when the mud has a high "water loss."

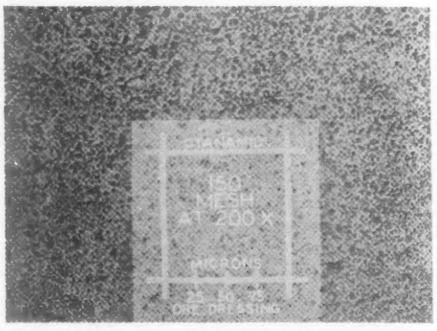
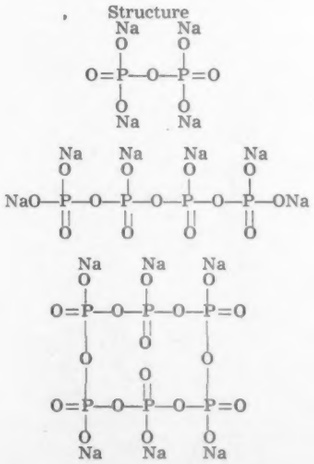


Fig. 2—Calcium-contaminated drilling mud restored with sodium tetraphosphate

Fig. 2 shows the effect of treating the flocculated mud of Fig. 1 with a complex phosphate. The entire area is darker because the clusters of clay particles have been dispersed. The particles do not cling to one another. There is little internal friction. Since the clusters have now released many clay particles to the surrounding water, there is little free water, and very little

Structure



water can filter out of the mud under pressure.

Complex phosphates are particularly useful in drilling mud because of their double effect of reducing viscosity and lowering water loss. When viscosity is reduced, sand will settle out in the ditch or suction pit, gas will be released in the ditch and the bit will dig faster and longer.

While all complex phosphates quickly reduce viscosity when they are first used on a well, there are differences between them that do not at first meet the eye.

A chemical is of little use unless it can be added repeatedly to the same mud to overcome the thickening due to heat and contamination. The comparison between different complex phosphates can be made by repeatedly adding each chemical to separate samples of the mud, measuring the viscosity of each sample after each addition has been thoroughly mixed with the mud.

A comparison between "Pyro" and "Quadrafos" by this method is shown in Figs. 3 and 4.

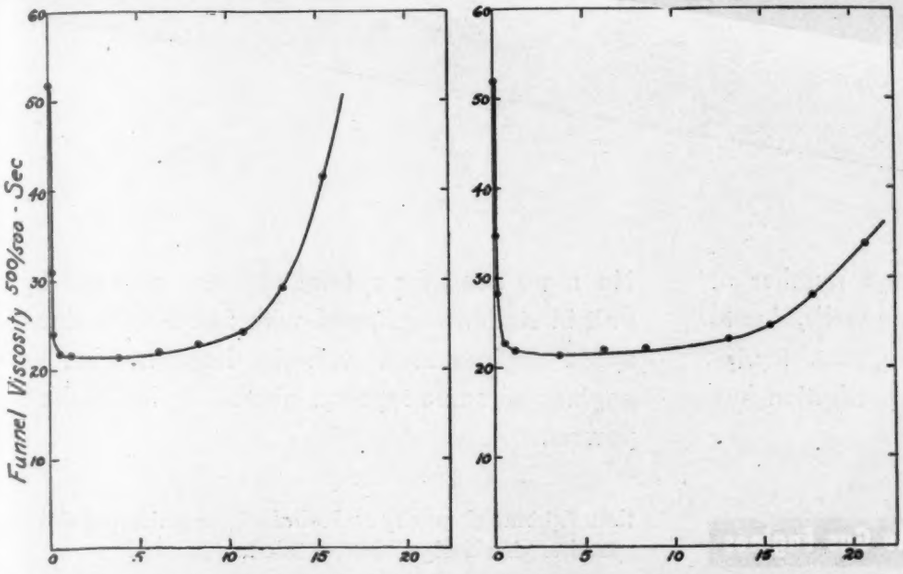


Fig. 3—Viscosity of drilling-fluid samples to which different amounts of tetrasodium pyrophosphate have been added. Fig. 4 (right)—Drilling-mud samples to which sodium tetraphosphate has been added

Since chemicals added to the mud are not entirely lost until the mud is removed from the well, this test for repeated treatment can sometimes be used in the field to anticipate when the chemical in use will stop working. When the failure of chemical treatment is known in advance, a change can be made before trouble is encountered.

Tannic Acid Compounds

Tannic acid or tannin is a complex organic compound occurring in certain trees and plants. The composition of tannic acids varies somewhat but all have the property of tanning raw leather. Tannins are classified according to certain of their chemical reactions. Quebracho extract, obtained principally from certain trees growing in South America, is called a catechol tannin. Chestnut extract is called a pyrogallol tannin. The catechol tannins are more resistant to destruction by heat or fermentation than are the pyrogallol tannins.

Pure tannic acids can be extracted from these and other sources, but as this results in considerable expense, the less costly crude extracts are used for treating drilling mud. Depending upon the source, the pH of crude tannin extracts will vary from 3.0 to 5.0.

Quebracho extract is poured into burlap bags while it is hot and solidifies on cooling so that it must be ground or broken up before use. Chestnut extract is produced directly in powdered form convenient for handling.

The tannin extracts are used in drilling mud primarily to reduce "water loss" and to condition the mud cake. Both quebracho extract and chestnut extract are commonly used for this purpose. The proper use of tannin extracts in conjunction with complex phosphates will almost always yield a mud which loses very little water to underground formations and will form a thin, tough filter cake that protects the walls of the open hole but leaves plenty of room for the bit and pipe to run in and out of the hole.

While not primarily used for reducing viscosity, tannin compounds frequently help to control this factor. Excessive quantities will cause overtreatment and thickening requiring special attention for correction. Tannin compounds are widely used in muds contaminated with large amounts of salt water.

Since tannin is a weak acid, quebracho and chestnut extracts are often dissolved with caustic soda which forms sodium tannate. When this is done the pH of the sodium tannate solutions should be controlled to avoid excessive alkalinity.

Silicates

Sodium silicates have been used in many forms for the treatment of drilling muds. These compounds consist of sodium oxide and silica in combination. The proportions of sodium oxide and silica may be varied over a wide range. One type, commonly used, contains 8.9 per cent sodium oxide and 29 per cent silica. Another has 18 per cent sodium oxide and 36 per cent silica. Sodium silicates are generally sold in the form of viscous water solutions or water glass. The most important solid silicate is sodium metasilicate which contains 29.2 per cent sodium oxide and 28.3 per cent silica.

Sodium silicates are somewhat effective for lowering the viscosity, and especially the gel strength of drilling mud. All sodium silicates are quite alkaline, however, and should only be used in small quantities, or, for special purposes, under close supervision. Overtreatment with silicates usually results in high viscosities that are difficult to reduce.

A special use for sodium silicates is to use large quantities with high concentrations of salt, dissolved in water. This gives a heavy fluid without the use of ordinary mud, for drilling troublesome heaving-shale areas along the Gulf Coast. Due to its special nature, this fluid is used only when drilling conditions are suitable for its application.

Sodium Bicarbonate

Sodium bicarbonate or baking soda has a low alkalinity (pH 8-9) and is useful for treating cement-cut mud. Lime or calcium dissolved from cement badly flocculates drilling mud and increases viscosity and water loss. If the mud is pretreated with bicarbonate before drilling out cement, this chemical will remove lime as insoluble calcium carbonate as soon as it is released from the cement.

Cement also increases the alkalinity (pH) of drilling mud. This is prevented when the mud is properly treated with sodium bicarbonate. Excessive bicarbonate treatment, or treatment after cement is already in the mud, frequently causes viscosity to drop too low. If this occurs, fresh mud or bentonite must be added to restore the lubricating and gel qualities of the mud. Treatment with bicarbonate is always followed by treatment with a complex phosphate. The detailed procedure for treating cement-cut mud will be discussed in another paper in the near future.

Caustic Soda and Soda Ash

These chemicals are strong alkalies and should not be added to drilling mud without technical supervision. These chemicals in solution have pH values from 13 to 14. A good general rule is never to add them directly to drilling mud. They are used primarily to increase the alkalinity of drilling mud when necessary. In such a case it is best to add the caustic soda dissolved with a tannin extract, or, in other words, as sodium tannate.

●

Economic Factors in Catalytic Cracking

(Continued from Page 56)

a topping tower, which is an integral part of the Houdry unit insofar as waste-heat utilization is concerned or as an independent operation. For the present purpose we have assumed this as an independent operation to permit analysis of the catalytic operation itself. Therefore, the hot reduced crude from the topping operation is assumed to be charged directly to the Houdry tube still and transferred to a tar separator where 8 per cent, based on crude, of tar is withdrawn. The tar separator overhead, representing 45.5-8.0 or 37.5 per cent, based on crude, passes to the catalytic cracking cases.

For approximate economic purpose the catalytic cracking yields as a function of catalyst space rate can be taken as the same as those for the heavy gas-oil stock given in Fig. 1. The preceding discussion of the heavy gas-oil stock indicated factors to be considered where catalytic charging-stock quantity is constant. It will be here assumed that a constant quantity of catalyst volume will be taken and the effects of space rate in permitting a larger or smaller charge to the catalyst are to be studied. Fixing the catalyst capacity at 213,000 l. will permit the following quantities of tar separator overhead to be charged to the catalyst at various space rates:

Relative catalyst space rate	B.P.S.D. case charge
0.75	8,075
1.00	10,750
1.25	13,400
1.50	16,100

(Continued on Page 64)

Superior

GAS AND OIL ENGINES TO GENERATE CURRENT FOR PUMPING WITH MOTORS

Particularly economical for a large number of part time or shallow, light pumping wells, due to flexibility, as well as low operating cost. Equipment can be moved easily, where production has short life.

No more need for special operator or stand-by unit in stations equipped with SUPERIOR slow-speed engines than with the large number of engines of same type on geared or bandwheel powers.

Single Cylinder Horizontal 2-Cycle Gas Engines

from 10 kw. to 50 kw. Can be skid mounted also radiator cooled for quick installation and moving. The simplicity and ruggedness of slow-speed engines are particularly suitable for small properties. No skilled operator needed. Same as any other heavy duty pumping engine excepting has special equipment to give close speed regulation for generator service. Convertible to oil.

Twin Cylinder Horizontal 2-Cycle Gas Engines

up to 125 kw. for single unit or multiple unit stations operating in parallel. Heavy flywheels, hydraulic relay governor and special mixing valve for close regula-

tion. Extreme simplicity and reliability of horizontal slow-speed engine design. Convertible to oil.

Vertical 2-Cycle Medium-Speed Gas Engines

from 20 kw. up to 150 kw. Can be skid mounted and radiator cooled. Either belted or direct coupled generator.

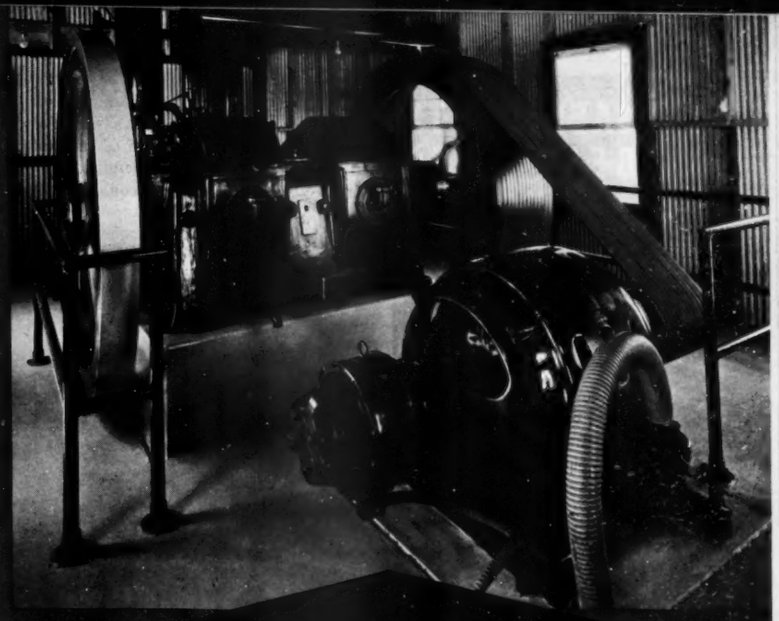
Vertical 4-Cycle Convertible Diesel and Gas Engines

in a wide range of ratings for generators up to 600 kw.; in high-speed, medium-speed and slow-speed models for all applications up to largest oil field central stations. Can be skid mounted and radiator cooled up to 225 kw.

DOMESTIC
EXECUTIVE OFFICES
PITTSBURGH, PENNA.
•
GENERAL SALES OFFICE
TOLEDO, OHIO
•
DIVISION OFFICES
FT. WORTH, TEX. • TULSA, OKLA.
TORRANCE, CALIF.

THE NATIONAL

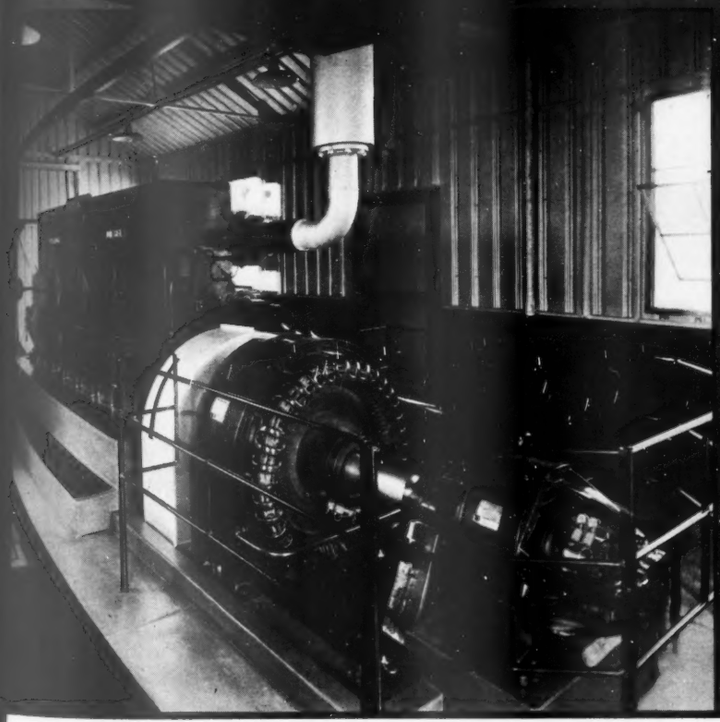
Horizontal single cylinder engine. Skid mounted, radiator cooled. In Illinois. 40 kw. generator.

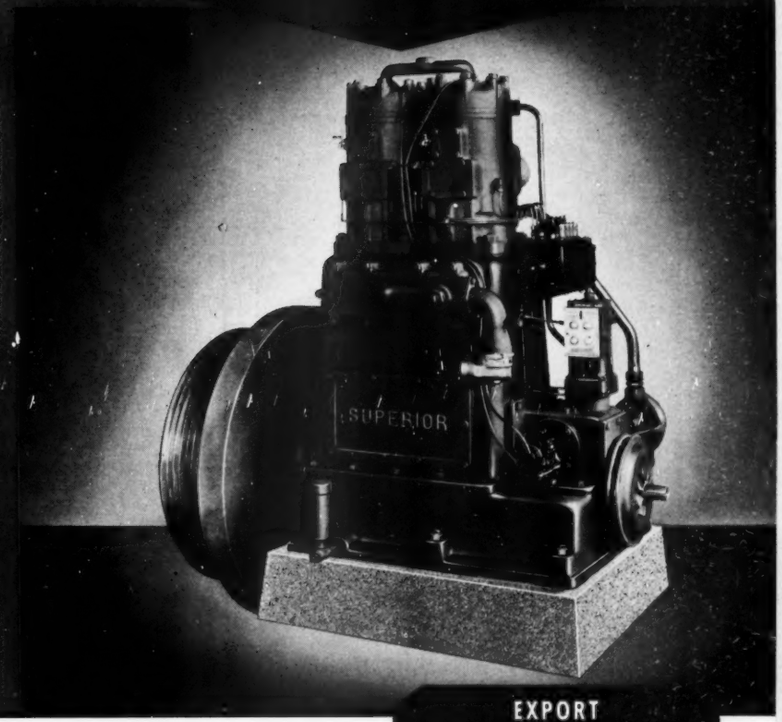


Horizontal twin cylinder engine. In Texas Gulf Coast field. 125 kw. generator.

350 H. P. Diesel direct connected to 312 kva. generator in North Texas field.

Shop view of vertical twin cylinder engine which drives 35 kw. generator. Note hydraulic relay governor.





NATIONAL SUPPLY COMPANY

EXPORT

THE NATIONAL SUPPLY CORPORATION
30 ROCKEFELLER PLAZA
NEW YORK, N. Y. . . . U. S. A.

•

RIVER PLATE HOUSE
12 SO. PLACE, LONDON, E. C. 2.
LIMITED LIABILITY

•

PLOESTI, ROUMANIA

•

MARACAIBO, VENEZUELA

SAFETY IS THE BEST POLICY

INSIST ON THE RED U-BOLT

WHEN BUYING WIRE LINE CLIPS

CROSBY WIRE LINE CLIPS

AMERICAN HOIST & DERRICK CO.

CHICAGO ST. PAUL, MINN. NEW YORK

QUICK SHIPMENT OF ALL SIZES FROM A DEALER NEAR YOU . . .

"ATLAS"
CHROME FACE
LUFKIN
CHROME FACE STEEL TAPES
Readability and Durability are two things an oil man wants in a steel tape—and he gets them both in the new Lufkin Chrome Face. Jet black markings on a satin Chrome surface make these tapes easy to read even in poor or artificial light. The all-metal construction gives durability. The chrome surface will not rust, crack, chip or peel and is easy to clean. See these advanced tapes at your dealers. Write for free general catalog.
LUFKIN
SAGINAW, MICHIGAN • New York City
TAPES · RULES · PRECISION TOOLS

Fig. 4 shows approximate plant costs in terms of dollars per daily barrel of case charge as a function of case charge, showing that for a fixed investment in the purely catalytic portion of the plant (constant catalyst volume) the total plant cost changes relatively slowly with plant throughput, hence the investment per unit of charge decreases rapidly as catalyst space rate is increased.

Items permitting calculation of operating costs will be subdivided into operating labor, utilities, catalyst cost, maintenance and royalty.

Operating labor: For a plant of the catalyst volume chosen and charging capacities the following operating labor requirements are representative: Turbo operator, 1 per shift; stillmen, 1 per shift; case operators, 1 per shift; case operator helpers, 1 per shift; firemen, 1 per shift. Personnel capable of handling thermal cracking equipment have in all cases been able to take over catalytic-plant operations after very short supervisory periods.

Utilities:

Space rate	0.75	1.00	1.25	1.50
Case charge, b.p.d.	8,075	10,750	13,400	16,100
Cooling water, g.p.m.	4,100	5,100	6,000	6,800
Treated boiler feed water, g.p.m.	145	145	145	145
Steam, net make, lb./hr.	19,400	15,260	11,120	7,100
Power, net required, k.w.	55	70	85	100
Fuel, B.t.u./hr. fired	$53x10^6$	$70x10^6$	$88x10^6$	$106x10^6$

Catalyst cost ..... $110 per calendar day

Maintenance (including cleanouts) 4-4.5 per cent of investment per year.

Royalty: $150 per calendar day barrel of case charge.

In examining the utility figures as given, it should be noted that considerable flexibility is possible in the steam, fuel, and power balance. For the capacity ranges covered it would be possible in any case to design the units for an approximate steam balance in normal operation (with no net make or demand). Similarly, starting-up demands on any installation can be planned to avoid overloading existing facilities.

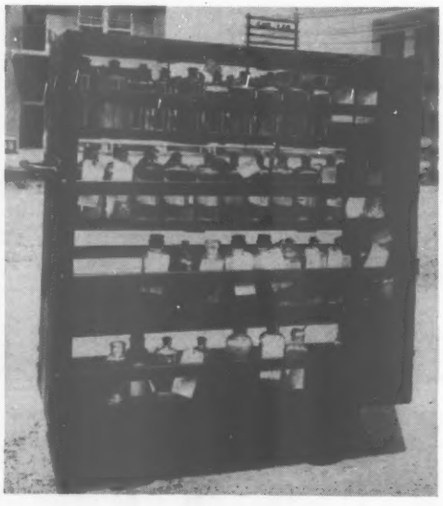
In general, it is believed that the Houdry catalytic cracking process has pointed the way to a new concept for the economic production of high-octane motor fuel. In view of the necessity of augmenting our national defense it is also of interest to note that the process is outstanding for the production of a base aviation fuel. One refinery has been producing such fuel as a commercial product for over 3 years and it seems well established that this product is unique in that it is paraffinic in nature and yet has the required antiknock characteristics, and requires a blend of about 35 per cent alkylate with 3 cc. of lead to produce a 100 Army octane gasoline. The use of such base stock will therefore, in effect, make available a greater quantity of 100-octane fuel as compared with a straightrun base which requires a greater percentage blend of alkylate.

Movable Cabinet and Trailer Expedite Handling Samples

AT the Port Arthur, Tex., refinery laboratories of the Texas Co. an average of 1,375 samples of oil are tested daily. Some samples require as many as 12 separate tests or determinations so the manual work of inspecting the samples daily will involve well over 5,000 tests. In order to most advantageously use the resources of the laboratory and to correlate the needs of the plant operators and the test results of the laboratory men, a system of sample collecting has been established on a simple but large scale.

Sample boxes or depositories have been scattered throughout the refinery and at points where they are convenient for the plant operator and the sample collector to frequent. Every 1 or 2 hours, and depending upon the need, a truck stops at each location. As these are brought to the laboratory they are divided into heavy and light-oil samples and sent to the respective test rooms. In the case of control samples, each comes to the laboratory with a tag tied to the bottle. This tag contains the list of test results desired by the plant operator and from this the laboratory man understands what tests are to be made. If any test shows the sample to be off specifications the plant operator is immediately notified by phone.

Trailer used to haul samples from plant storage rooms to bottle-recovery department. Capacity 672 bottles



After the sample is tested it is placed in one of these cabinets. When the cabinet is filled it is hauled to the sample room. The cabinet is shown outside the building to permit photography

In the case of plant shipments, samples are brought to the laboratory representing each batch of oil available for loading and then samples are taken from the loaded tanker or car. This procedure serves as a check. Obviously, this system prevents a shipment from leaving the plant which has not had the approval of the laboratory.

Samples taken from shipments are also stored for at least a year and in some instances for 2 years. Large and conveniently arranged tiers of shelves are provided in specially constructed sample rooms and reference can be readily made to any shipment.

Operating Ideas

Discarded Cable Forms Deadline Hitch

A double turn of old drilling cable, passed around the base of one corner of the derrick foundation, serves as anchorage for the deadline at an East Texas drilling operation. The deadline is passed through the loop formed by the cable, and a short

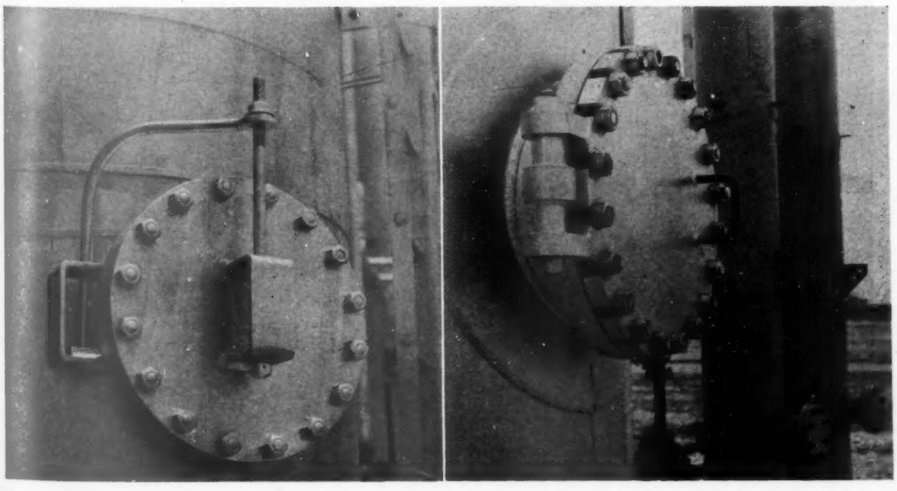
block of timber, 8 by 10-in. or larger, inserted in the bight thus formed before load is put on the wire line. Use of the block prevents a kink being placed in the deadline, while the width of the concrete foundation block itself assures a wide arc in the hitch loops. Infrequent addition of a dab of grease or heavy oil at the point of contact between the two cables prevents any tendency toward abrading, and enables new line to be run in through the hitch when desired. A thimble placed at this point, however, would be an improvement over this method.

Bench Tool Board Saves Derrick Time

A short piece of 2 by 12-in. lumber, drilled with 1½-in. holes at 6-in. intervals, and mounted on short blocks, forms a handy support for punches, drifts, and other small tools used around a derrick. Tools stood up in this rack between times of use are removed from underfoot, where they might cause an accident, and are also prevented from rolling off the floor onto the ground and being lost. One rig using this method of storing small tools finds that having them handy for inspection tends to assist in keeping the punches and drifts in better shape—it being easy for the district superintendent or tool pusher to inspect them when in the rack.

Lower Rings of Tank Used as Salt-Water Reservoir

To avoid pollution of the soil or surface waters, one oil company in the Burrton field of Reno County, western Kansas, is using the two bottom rings of an 80,000-bbl. tank as a salt-water reservoir. The reservoir is placed at an elevation sufficient to allow the salt water to gravitate to the input well, thereby eliminating need for any pumps except on the gathering system.



Hinged Manhole Covers Aid Work on Towers

Common practice in refineries and natural-gasoline plants has been to use chain hoists for removing manhole covers from the towers whenever it is necessary to clean or inspect the towers. In two plants, use of the hoist has been eliminated by hinging the covers so that when the bolts are removed the covers will swing back out of the way to allow free access into the tower. The accompanying photographs show the different methods used in these two recycling plants; in one the cover is hinged directly onto the flange while in the other an extension hinge is used.

Progress in METALS

By W. L. NELSON

Field Tests on Alloy-Steel Chains

A series of tests were reported in a paper published last year by L. Lahoussay of the technical committee of the coal mines of France, regarding special alloy-steel chains for mine cages. The paper has received attention in the recent publication entitled, "Design," by the Carpenter Steel Co., of Reading, Pa., and in the editorial column of the February 1940 issue of Nickel Steel Topics. Reading from the above sources:

Ordinary welded sling chains are subjected to repeated impact under varying conditions, and require careful attention such as periodic stress relieving, which can be more dangerous than useful if not properly carried out. This necessitates chains of ample dimensions and consequently of great weight to assure safety.

In order to eliminate these objections and at the same time to increase the safety of their hoisting installations, two French mines put into test, in 1934, chains made from small flat bars assembled with doweled axle pins. Special steels were adopted, containing: for the bars, 2.20 per cent nickel and for the pins, 2.70 per cent nickel and 1 per cent chromium. The tensile strengths were of the order of 95,000 and 124,000 p.s.i., respectively, which permitted free machining after heat treatment. Thus the treatment could be carried out in the steel plant and a better guarantee of uniformity of properties could be attained. These steels would not require stress relieving in the course of their use, which confers a considerable advantage.

Two field tests were conducted with these chains, extending over a 4-year period, one in a shaft with particularly corrosive waters. Extended tests on specimens taken from links and pins after 1 year's service, after 4 years, and on similar specimens of each which were not put into service, were conducted, resulting in the following conclusions:

Very little wear, as indicated by measurements taken on the link opening, before and after service, was shown. Wear increased slightly during the last 2 years, which is natural because as play between link and pin increases, shocks become magnified, and dust, grit, etc., can penetrate more easily into the joints.

On the chains used in the one mine where corrosive conditions existed, measurements were taken for wear as above, and also after filing the links to remove any trace of etched cavities. The deterioration from corrosive wear appeared very slight; after 4 years' service it attained a maximum of several thousandths of an inch, and did not affect the strength of the chain appreciably.

Results (average of two tests) are shown in the accompanying table.

The hardness tests on the pins indicated that some work hardening was caused by friction, but not enough to affect performance life. The tests, in general, show that 4 years' service does not alter tensile or impact properties any more than would be expected from variations caused by inevitable irregularities in fabrication and treatment.

It should be remembered also that these alloy-steel chains were not given any stress-relieving treatment, the lack of necessity for which provides a definite maintenance economy as compared with welded chains or ordinary materials.

	Control specimen held in the plant	Chain before putting in service	In service 1 year	In service 4 years
Link—				
Tensile strength, p.s.i.	100,500	84,900	101,600	93,500
Elastic limit, p.s.i.	75,100	69,300	76,500	70,300
Elongation, per cent	22.5	24.3	21.5	20.5
Reduction of area, per cent	.....	70	67	73
Brinell hardness	.....	196	207	198
Impact Mesnager*:				
Longitudinal, ft./lb.	116.9	131.2	111.0	118.2
Transverse, ft./lb.	.....	63.0	60.8	61.0
Pin—				
Tensile strength, p.s.i.	123,900	130,700	134,700	135,000
Elastic limit, p.s.i.	102,700	122,300	117,600	115,800
Elongation, per cent	16.0	13.6	15.7	13.5
Reduction of area, per cent	.....	60	63	62
Brinell hardness	241	273	277	285
Impact Mesnager*: (Logitudinal), ft./lb.	79.5	50.9	65.9	41.0

*The Mesnager notch is U-shaped as compared to the V-shaped notch for Charpy or Izod impact tests.

High-Pressure Pipe-Line Valves

The use of molybdenum cast iron for the valves for high-pressure cross-country pipe lines is discussed in the April issue of the Moly Matrix of the Climax Molybdenum Co. Large valves are expensive, particularly if made of forged steel, and hence the use of strong alloy (molybdenum) irons is a logical development. The Wescott Valve Co., of East St. Louis, Ill., has developed a valve which meets the requirements in a satisfactory manner. The body of the valve is cast from molybdenum iron of the following typical analysis:

	Per cent
Total carbon	3.33
Silicon	1.61
Manganese	0.95
Molybdenum	0.50

The tensile strength by the standard 1.2-in. diameter test bar was 48,310 p.s.i.

The iron is uniform throughout so that machining can be accomplished with ease even on inside parts. The high strength is useful because relatively high-flange loads are encountered and because of the temperature stresses that are set up in long lines.

The studs used to fasten the bonnet to the body of the valve are made of S.A.E. 4140 chromium-molybdenum steel which upon oil-quenching and drawing at 1,100° F. exhibits the following properties in studs 2½-in. and smaller in diameter:

Tensile strength, p.s.i.	125,000
Yield point, p.s.i.	105,000
Elongation in 2 in., per cent	16.0
Reduction of area, per cent	50.0

The success of these valves is based on the low initial or replacement cost and low maintenance costs.

Pearlitic Malleable Iron

The increasing interest in pearlitic malleable iron is clear indication of the importance of this material and the advantages which it holds over regular malleable iron. The regular iron consists essentially of pure iron having pockets of graphitized carbon dispersed throughout the center of the material. Pearlitic malleable differs from the regular iron because some of the carbon is left in the iron so that the main bulk of material is pearlitic rather than pure iron. This results in a much harder and stronger material—and one which is somewhat similar to steel. At the same time, the major advantage of being able to shape the material by the operation of casting is still retained. The structures of pearlitic and regular irons are shown in the accompanying photographs.

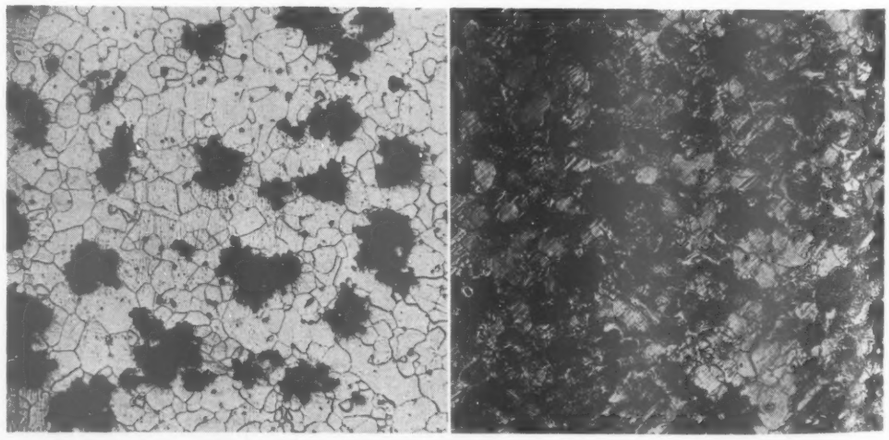
A comparison of the properties of irons and steels is given in the following tabulation taken from "Pearlitic Malleable From the Electric Furnace," by Edwin F. Cone in the August 1940 issue of Metals and Alloys.

	Pearlitic malleable	Regular malleable		Steel medium
	(Belmalloy)	32510*	35018*	A.S.T.M.
Tensile strength	70-80,000	50-52,000	53-60,000	70,000 min.
Yield point	45-50,000	32-35,000	35-40,000	31,500 min.
Shear strength	60,000	46,000	51,000	69,000
Elongation	5-10	10-18	18-25	20 min.
Brinell	179-207	105-135	125-143	147-169

*Specifications from Cast Metals Handbook.

By the use of small amounts of copper and molybdenum in the pearlitic malleable, essentially the same properties are obtained except that the elongation can be varied to 15-20 per cent.

The electric furnace is unequaled as a means of closely controlling the composition so essential for obtaining a metal that will be uniformly heat-treated.



Photographs of the structure of regular malleable iron (left) and of "Belmalloy," a pearlitic malleable iron from the electric furnace. (Courtesy Belle City Malleable Iron Co.)

Pipe-Line Activity

Pan American Awards Contract to Williams Bros. for 195-Mile Line

Pan American Pipe Line Co. has awarded a contract to Williams Brothers Corp. for the construction of 195 miles of crude-oil pipe line to provide transportation from the East Texas field to the company's refinery at Texas City. The job will consist of approximately 58 miles of 10-in. from East Texas to a point near Douglass, Nacogdoches County, and approximately 137 miles of 12-in. from there to Sinco, Tex. Work will start as soon as deliveries of pipe are received. Operations will be supervised from headquarters which will be established at Kilgore and from the contractor's permanent warehouse at Houston. The contractor's work will be directed by Guy S. Conners, general superintendent, and J. R. Horrigan, superintendent.

F.P.C. Adjourns Hearing On Tennessee Pipe Line

WASHINGTON, D. C., Oct. 14.—A public hearing before the Federal Power Commission to consider a pipe-line application by the Tennessee Gas & Transmission Co. has been adjourned subject to call. The Tennessee company, which asked for the adjournment in order to prepare additional evidence for submission to the commission, has applied for a certificate to build a pipe line from northern Louisiana to Nashville, Chattanooga, and Knoxville, Tenn., and Asheville, N. C.

Trial Examiner Carroll B. Spencer has not yet indicated when he will resume the hearing. Present with Mr. Spencer during the first part of the hearing was Leon Jouroimon, member of the Railroad and Public Utilities Commission of Tennessee.

Several natural-gas companies were given permission to intervene in the proceedings. The Southern Natural Gas Co., and its subsidiary, the Chattanooga Gas Co., informed the examiner that the new pipe line would interfere with a pipe-line extension which they were already building from Rome, Ga., to Chattanooga. It was revealed that if the Tennessee company is allowed to construct its line, it will be permitted to take over as much of the Southern company's line as will be built by that time.

The Kentucky Natural Gas Co. testified that the new line would interfere with an extension to Nashville which it has intended to build for some time. If the Tennessee company goes ahead with its line, the Kentucky company will be forced to abandon its plan for the extension.

A group of coal and railroad groups which protested against granting a certificate to the Tennessee company included the Southern Appalachian Coal Operators Association, Association of American Railroads, National Coal Association, and the United Mine Workers of America.

MEMPHIS, Tenn.—In addition to Tennessee Gas & Transmission Co., two other companies have a part in the proposed project for the construction of a natural-gas line from Monroe, La., to Nashville, Chattanooga, Tenn., and Asheville, N. C. One of these is Natural Gas Co. of Tennessee, located at Nashville, Tenn., of which J. B. Henderson is president and Thomas Wrenn is secretary and treasurer. The other is Tennessee Pipe Line & Distributing Co., Chattanooga, Tenn. This company has the same officers as Tennessee Gas & Transmission Co. They are Curtis B. Dall, president, and John E. Buckingham, secretary and treasurer. Engineering work for the Tennessee project has been handled by Brokaw, Dixon & McKee, New York.

F.P.C. Considers Milwaukee Gas Pipe-Line Projects

MADISON, Wis.—At the hearing now being held by Federal Power Commission jointly with state regulatory bodies to consider applications of Western Natural Gas Co. and Independent Natural Gas Co. (Phillips Petroleum) to lay lines from the Panhandle to Chicago, testimony was presented by engineers and geologists.

James H. Page, of Wichita, Kans., estimated that 20,000,000 cu. ft. of gas were piped daily from 296 wells in the Hugoton fields of Kansas during the first 8 months of 1940. Mr. Page, petroleum geologist for the Corporation Commission of Kansas, testified at a hearing on the question of extending natural-gas service to Wisconsin.

J. Harper McKee, New York geologist, estimated there were 17.6 trillion cubic feet of gas in the Hugoton field. Mr. McKee contended the 1,860,000-acre Hugoton field would supply gas for years to come. It has been producing for 10 years, he said, and there are wells only at the extreme northern and southern ends.

J. Samuel Hartt, Chicago consulting engineer, declared that the Western Natural Gas Co. planned to spend about $1,100 a mile to obtain easements on an 802-mile natural-gas pipe line from the Kansas pool to Milwaukee. Mr. Hartt said about $500 a mile would be paid directly in damages to persons whose land was crossed by the 50-ft. right of way. About 150 miles of the main line and 182 miles of laterals would be in Wisconsin.

Wabash Completes Cathodic Survey in Illinois

Wabash Pipe Line Co. has completed a cathodic-protection survey of its line from Noble to Martinsville, Ill. The survey revealed only a few hot spots and the company later will take measures to correct the trouble.

Ohio Fuel Gas Co. Builds Station at Mount Sterling

During recent weeks Ohio Fuel Gas Co. has been constructing a new compressor station a mile west of Mount Sterling, Ohio. Equipment for the station consists of one 1,350-hp. unit and two 675-hp. units. This station will make it possible to improve service to Springfield, Dayton, Piqua, Sidney, and other western Ohio points during winter months.

Pipe Line to Be Laid Near Selma, Ala.

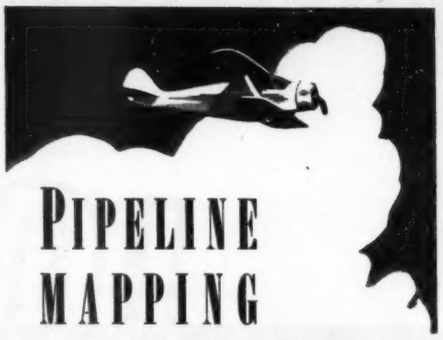
Alabama Gas Co., Montgomery, Ala., has let a contract for the construction of a lateral line to furnish gas to the training field of the U. S. Army Air Service where provision is being made for carrying on a training program.

Pipe Line Punctured By Rifle Bullet

TITUSVILLE, Pa.—A crude-oil line of Cities Service Oil Co. in the Church Run district was discovered a day or two ago to have been punctured, presumably by a rifle bullet which penetrated the wall of the pipe on both sides, with the result that considerable oil was lost and a small stream of water near the Sportsmen's Club contaminated.

Highway Permits Granted for Milwaukee Gas Line

MILWAUKEE, Wis.—Permits to cross highways in Waukesha and Racine counties in Wisconsin have been granted to Natural Gas Pipeline Co. of America which is building a 162-mile 20-in. line from Geneseo, Ill., to Milwaukee. In proceeding with the construction work, the company maintains that it does not come within the jurisdiction of Federal Power Commission and the state Public Service Commission in Wisconsin, which, together with other state regulatory bodies have been holding hearing during the past week to consider the applications of Independent Natural Gas Co. and Western Natural Gas Co.



PIPELINE MAPPING

AT MAXIMUM SPEED

An organization of more than three hundred employees; operating eight photographic airplanes—and prepared to supply accurate and dependable photographic mapping at maximum speed and minimum cost.

PHOTOGRAPHIC MAPS—accurate picture of the land, in scale, along the entire length of the contemplated route.

CONTACT PRINTS — overlapping exposures, permitting stereoscopic examination for contour and elevation data.

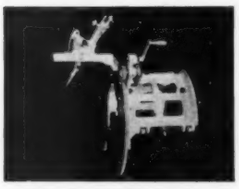
OWNERSHIP MAPS—traced from and controlled by the photographic map and containing all ownership and occupancy data for right-of-way purchase, as compiled by a highly trained corps of experienced abstractors and engineers.

EDGAR TOBIN AERIAL SURVEYS

502 West Mistletoe — San Antonio Texas

HOUSTON OFFICE: COMMERCE BLDG.

CUT and BEVEL PIPE The Fast Economical Way—



The H & M PIPE CUTTING and BEVELING MACHINE, cuts and bevels any size of pipe with speed, economy and accuracy. Using an oxy-acetylene cutting torch, it cuts and bevels much faster than any other method. Turns out consistently uniform cuts and bevels.

Write for bulletin giving sizes and complete specifications.

The H & M Pipe Beveling Machine Co.
20 EAST 25TH ST. TULSA, OKLA.

Each week you will find complete coverage of pipe line news as well as special articles on pipe line construction and operation in

The Oil and Gas Journal

10 YEARS

● *Wilson Rig purchased by Bobby Burns in 1933, has drilled over half-million feet of hole and is still going strong. Since this rig was purchased there has never been a time that the Wilson Manufacturing Company has not had one or more unfilled rig orders.*

● *At right, first Wilson rig purchased by Bert Shaw, October, 1930. Drilled 1,100 feet, Archer County.*

Wilson Sets the Pace!

Rigs powered by internal-combustion engines first proved attractive because of portability, which is apparent on this rig being used in the Hull-Silk field of North Texas. A rig of this kind was lately used by Richfield Oil Corp. at Wheeler Ridge, Calif., to drill to a depth of 11,004 ft.

Adapting Rotary Rigs to Use of Internal-Combustion Engines

By T. P. SANDERS

ADAPTATION of drilling rigs to the use of internal-combustion engines has been a development of the last 10 years. Original interest in gas and diesel engines for drilling duty was due to their fuel economy, ready portability, and water economy. Competitive conditions of the past 10 years have served to amplify the importance of these three qualities. At the same time, improvements in engine design and construction, resulting in displacement of the unwieldy low-speed engines by the high-compression medium and high-speed machines, have made these qualities of economy and portability even more characteristic of the internal-combustion engine. With increasing demand for these qualities, the problem has been that of designing drilling rigs to make the best possible use of internal-combustion engines.

Before 1930 all rotary drilling rigs had been designed for use with steam power, although some had made use of internal-combustion engines. The first applications of internal-combustion engines to drilling were not eminently successful because, while good fuel economy was obtained, the rigs were difficult to operate. It therefore became apparent that in replacing steam engines with engines of very different power characteristics, many changes would have to be made in rig design.

The first rigs to use internal-combustion engines all used reverse clutches between engine and draw works. This served two purposes: Since the draw-works clutches on the converted steam rigs were of a jaw type which locked in position, the drive from the engine had to be reversed in order to make it possible to disengage the clutches. Also, the drums were mounted on bearings that would not allow the blocks to fall fast enough when the elevators were empty, and since these drums were very heavy, there was much inertia to be overcome.

Free-Rolling Drum

In their first application of gas engines to drilling duty the Wilson Manufacturing Co. in 1930 did away with the reverse clutch. This was done, first, by providing a free-rolling drum and, second, by providing a jaw clutch which could be disengaged easily without reversing the engine drive. The free-rolling drum in itself introduced many new design features. To begin with, it was mounted on self-aligning roller bearings which took care of the thrust loads as well as the radial loads. Also, on the older-type draw works, the load transmitted from the engines to the drum was carried by the drum shaft, thereby inducing a severe torque on the shaft. By allowing the clutch to act directly upon the drum, the torque was prevented from reaching the drum shaft.

This innovation automatically resulted in reducing the necessary length of the shaft so that the bending moment on the shaft was reduced about 50 per cent. With bending moment reduced and twisting force eliminated, it was possible to reduce the shaft diameter greatly. Thus, a step toward producing a far lighter rig was taken. Following the same line of endeavor, the drum itself was redesigned, bracing it from within to obtain greater strength with less weight. Other parts of the rig underwent this same transition.

With the free-rolling drum and the jaw clutch of new design, the draw-works clutches could be operated freely after disengaging the friction clutch at the engine and applying the brakes on

John Hart Wilson, owner of Wilson Manufacturing Co., was born March 26, 1893, in Pueblo, Colo. Since 1893 was the year of the panic, his father's position with one of the railroads came to an end before he was many months old, and the family moved to West Virginia where both parents had grown up. At Clarksburg the family settled and there John Wilson received his early schooling.

During his course at Purdue University, John Wilson was enrolled in electrical engineering, but carried more than the required number of mechanical-engineering subjects. He graduated in 1914, and after spending 2 years in installing power plants in West Virginia factories, he accepted a position as a power engineer in Toledo.

In September 1917 he entered the U. S. Army as a second lieutenant and soon left for France with the Seventh Battalion of the Twentieth Engineers. Later he became adjutant of the Seventh Battalion.

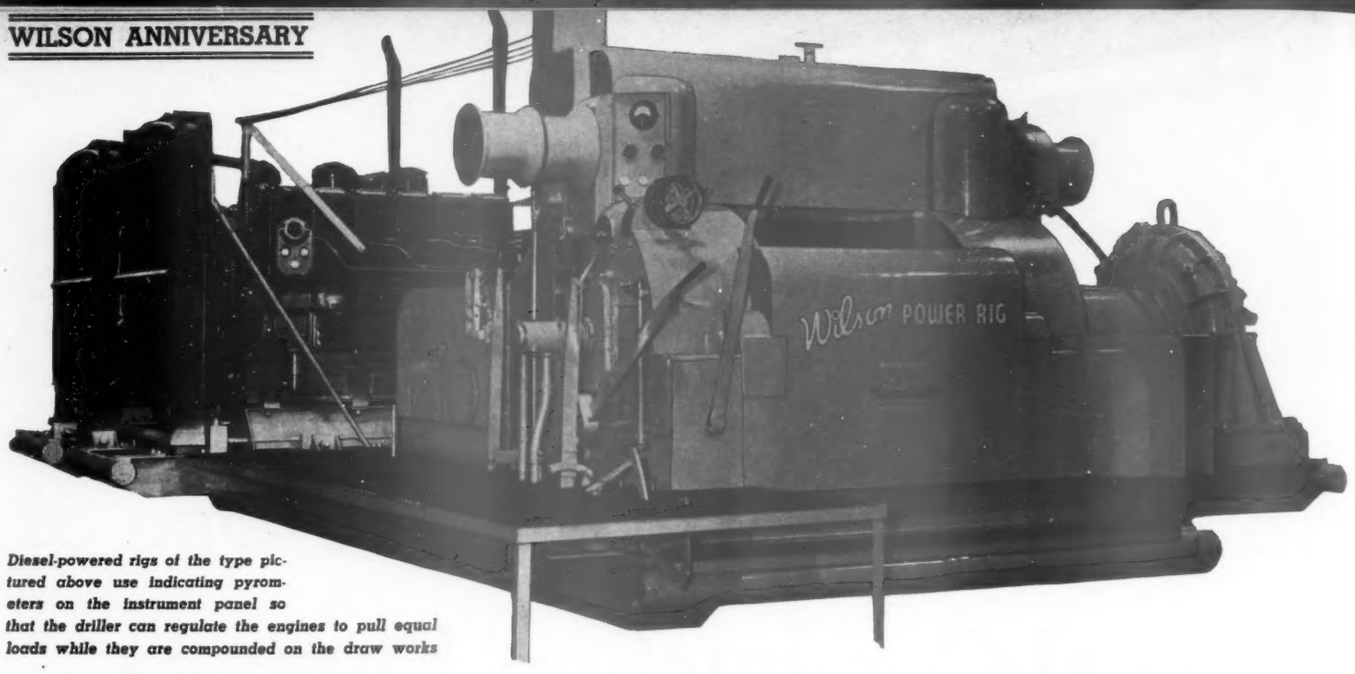
The Twentieth Engineers, consisting of about 21,000 men, was the largest regiment in military history. Their first task in the war was to construct a complete American railroad across France to insure supply of war materials to the American forces at the front. In spite of great difficulties, this task was carried on with efficiency seldom equaled in peacetime industry. Lieutenant Wilson was engaged in operating a group of small sawmills where ties were cut from native French timber. On their way from the United States factories, the mills had suffered from saboteurs but after repairs were made to produce at 10 times their rated capacity.

In August 1918 Wilson was promoted to the rank of first lieutenant at Langres, France, near the front, and was returned to the United States, the purpose being to bring another contingent of troops into the war zone. At Camp Humphries, Virginia, however, he was drafted into service as commanding officer of headquarters' garage. Army transportation had become a severe problem, and with the "flu" epidemic in progress it was intensified. For this reason the transportation assignment was not completed until January 1919, or 2 months after the Armistice.

After leaving the Army, Mr. Wilson returned to West Virginia, but in 1920, attracted by the oil boom in North Texas, he went to Burkburnett where he founded a machine shop, known as Wilson Machine Co. In 1923 the Wilson Manufacturing Co. was formed and this company produced its first oil-field winch, mounted on a tractor. Increasing demand in 1926 led to relocation of the factory at Wichita Falls.

The first Wilson drilling rig was made in 1930. While it consisted mainly of a large-sized winch powered by a Hercules engine, it represented the first attempt to design a drilling rig especially for use with an internal-combustion engine. Other rigs had used engines of this type, but always with draw works that had been built for steam rigs.

Remembering that automobiles had followed buggy design before manufacturers came to designing the vehicle to suit its new-type power, Mr. Wilson set out to build drilling rigs that would be adapted to the power characteristics of the internal-combustion engine. His past 10 years have been directed largely toward that end, and contributions made toward rotary drilling by his company are discussed here.



Diesel-powered rigs of the type pictured above use indicating pyrometers on the instrument panel so that the driller can regulate the engines to pull equal loads while they are compounded on the draw works

the drum to hold the load. This was an important step, but many more were to follow.

The first Wilson rig was used by Bert Shaw, drilling contractor, to drill a 1,100-ft. well south of Archer City, Tex. In its original form this rig drilled four wells in North Texas during 1930 and early 1931. During 1932 improved rigs of a similar type were used to drill 3,800-ft. wells in East Texas. The first Wilson rig sold in the normal course of business for other than experimental purposes was bought by L. T. (Bobby) Burns, independent oil producer of Wichita Falls, for North Texas drilling in 1933. This rig was greatly improved over the Bert Shaw rig and had a friction clutch on the high-speed drum drive.

Compounding of Engines

Soon after building its first drilling rig the Wilson Manufacturing Co. purchased the patent rights for the compounding of two or more engines for rig operation from Franklin Engine & Manufacturing Co. The early gas-engine rigs tended to follow design of the steam rig by providing one engine to drive the draw works and rotary table, while a second engine was provided to drive the slush pump. While this system favors simplicity, it has a certain disadvantage. By far the greatest power requirement comes at the time when the drill pipe is pulled from the hole. Therefore, with only one engine on the draw works this engine must be large enough to provide ample power for hoisting. Yet the same engine must provide power on a far more continuous basis for the comparatively easy task of turning the rotary table.

When a large engine is used to carry a light load, poor fuel economy results. In order to avoid this disadvantage the logical solution was to develop a system which would permit combining the power of the slush-pump engine and the draw-works engine for hoisting duty. With this arrangement two engines are compounded for hoisting while each engine performs its usual service during the normal course of drilling. Thus weight is conserved and better fuel economy is obtained.

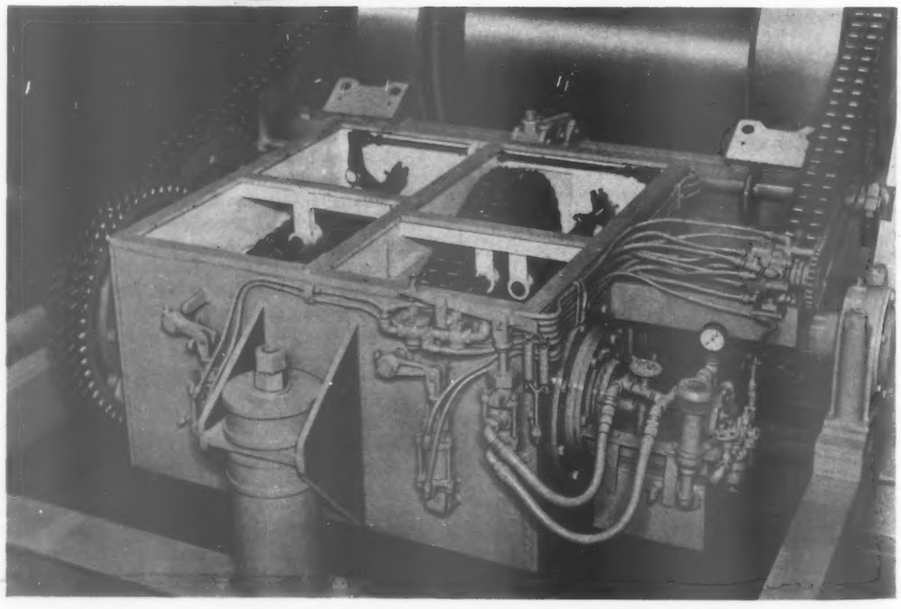
The compounding of engines has more recently been carried to a far greater degree of perfection. Since the slush pump requires more power than the rotary table, many rigs now use three internal-combustion engines. Two of these drive the pump while the third drives the rotary during normal drilling. During hoisting all three engines are compounded on the draw works. On the three-engine Wilson rig, any engine can be used on any duty, a feature which may take on great importance should one engine break down or be temporarily out of service while repairs are made.

In order to ascertain that each engine is taking its share of the load when two or more engines are compounded together, vacuum gages are now used on gas, gasoline, and butane engines, the regulating being performed by manipulating the throttles to keep identical readings on the gages. For diesel engines, pyrometers are used in the same manner.

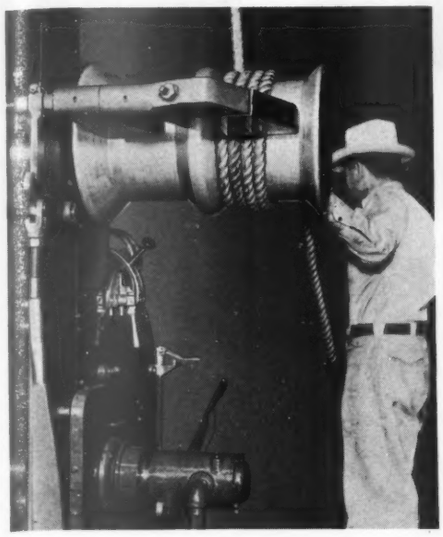
The usual steam rig had a selection of three or four speed ratios between engine and drum, so as a result, the first gas-engine rigs had the same number of speeds. While this number of speeds was sufficient for steam operation because of the wide range in speed variation of the steam engine, it proved insufficient for gas-engine operation.

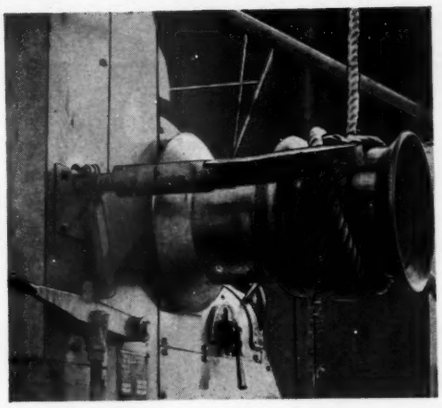
When a long string of drill pipe is removed from the hole, the internal-combustion engine may be loaded to capacity while the first few stands are being pulled. However, as the load becomes increasingly lighter the engine becomes only partially loaded, since its speed is held constant by the governor, and its load is less. Thus as the hoisting

Left: The instrument board at the driller's position includes tachometers for both engines. These, aided by vacuum gages, make it possible to keep gas engines compounded accurately. Below: Six-speed chain transmission with flexible mounting to absorb shock. Through the use of air controls automatic shifting is accomplished



Accidents about the cathead are prevented by a safety device which disengages the main clutch and applies a brake when the catline becomes entangled. The photograph immediately below shows how the device is not affected as long as the line spools evenly, while the one to the right shows it being tripped due to the line piling up on the cathead





progresses, the power used represents an ever-decreasing portion of the engine's capacity until it becomes possible to shift into the next higher drum speed. (See Drilling Equipment Directory, 1939-40 ed., p. P-14, Chart 5.) If few speed ratios are available, the power utilized from the engine must decline to a comparatively small portion of the engine's capacity before it is possible to shift speeds. By providing six speeds instead of four, the engine's power is utilized much more fully during hoisting.

The chain transmission, which was designed to provide six speeds forward and two speeds in reverse, is one of the greatest contributions to rotary drilling made by Wilson Manufacturing Co. It entirely eliminates one shaft, including the chains, sprockets, and bearings. Two of the remaining shafts operate in the fully enclosed transmission box where the chains are partially immersed in oil to provide positive lubrication. The transmission box is set on a flexible mounting so that it tends to prevent shock from being carried from the draw works to the engines.

The first gas-engine rigs all used the common exposed oil-field type chains and sprockets. These were subject to poor lubrication, excessive friction loss, and disconcerting noise. The Wilson Manufacturing Co. replaced these either with V-belts or with enclosed roller-chain drives using automatic lubrication. Self-aligning roller bearings designed for thrust or end loads, as well as radial loads, were installed quite generally throughout the rig.

Friction Clutch on Drum Drive

While all of the early gas-engine rigs employed jaw clutches on their draw works, these were not so satisfactory as they had been in the case of the steam rig because the internal-combustion engine, having a flywheel, causes more shock on the drive system than a steam engine does. As depths became greater and engines were compounded for more power, it became apparent that a jaw clutch could not be made satisfactory for the high-speed drive of the hoist drum. Unless the engine-shaft clutches were disengaged and motion was stopped completely, the high-speed jaw clutch could not be engaged without severe shock, which usually proved very destructive. After engaging the jaw clutch at the drum, the load always had to be picked up with a friction clutch on the engine shafts.

The first company to install a friction clutch on the hoist drum was the Wilson Manufacturing Co. This development took place in 1933. At this time only the high-speed drum drive was so equipped, while the low-speed drive still employed a jaw clutch. Since the inertia to be overcome was far greater when the high-speed drive was suddenly engaged than when the low-speed drive was suddenly engaged, it was logical that the high-speed drive should have been equipped with a friction clutch first. This hoist-drum friction clutch resulted in greater speed since it made it necessary to disengage the clutch on the engine shaft while engaging the high-speed drum drive. Also, it eliminated the severe shocks which took

(Continued on Page 80)

On July 22, 1940, ONE DRILLING COMPANY wrote one of our customers as follows:
"We would not purchase another drawworks unless equipped with friction drives.
We are particularly pleased with the performance of the Twin Disc Clutches used on the final low and high drives. Neither of these clutches have been touched or even adjusted during this time. The clutch on the rotary drive has been adjusted only one time. (This after seven months service.)
These clutches not only effect a great saving on wear and tear throughout the unit by eliminating shock entirely but also increase the operator's efficiency. Instead of continually fighting big jaw clutches all day he merely steps lightly on the foot pedals to hoist and release the pressure to stop."
That's why more Twin Disc Clutches are in use in the oil fields than all other makes combined.
Model E Single Plate Clutch
TWIN DISC CLUTCHES
Model CL Single Plate Clutch
TWIN DISC CLUTCH COMPANY • 1328 RACINE STREET • RACINE, WISCONSIN

"CATERPILLAR"

Wilson rig, powered by two "Caterpillar" Diesel D13000 Engines, drilling near Keensburg, Ill. Each engine is using about 5 gallons of 7½c fuel per hour. The Wilson Manufacturing Company is celebrating the 10th anniversary of the Wilson power rig this month, and is one of many manufacturers of drill rigs who offer their products powered with "Caterpillar" Diesel Engines.

"DIESEL POWER

...helps put PROFIT in DRILL RIGS!

MANY TYPES and makes of drill rigs are making extraordinary records for speed and uninterrupted operation with the aid of dependable "Caterpillar" Diesel Engines. And the reason is that these modern Diesel engines are built for work—tough work—with the highest quality construction and many exclusive design features which particularly fit them for the most severe types of service.

Texas, California, Oklahoma, Kansas, Pennsylvania, Illinois, Mexico, Venezuela, Roumania, Iraq—wherever you go, you'll see plenty of operations having "Caterpillar" Diesels "in charge" . . . with a dependability that's backed by the world's most complete and readily available engine-parts-and-service facilities.

When buying drilling equipment, specify "Caterpillar" Diesel Power—for dependability, portability and economy.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

•

USE THE FUEL THAT'S HANDIEST

For added profit and convenience, choose engines that can be adapted to use the fuel which is most readily or economically available to you. Through a special conversion arrangement (built by "Caterpillar" itself), the "Caterpillar" Diesel Engines used for drilling can be readily equipped to burn natural gas.

CATERPILLAR

Diesel

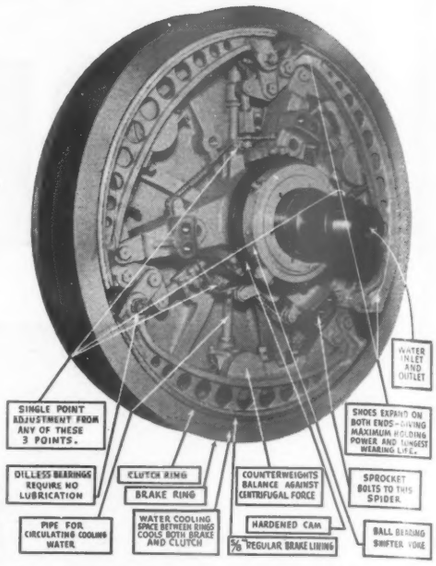
ENGINES AND ELECTRIC SETS
TRACK-TYPE TRACTORS
ROAD MACHINERY

place when operators engaged the jaw clutch while the machine was in motion.

Because the friction clutch on the high-speed drum drive quickly came to be appreciated, the Wilson company set out to extend this feature to the low-speed drum drive. This was an undertaking of greater magnitude, for there was no clutch at that time on the market designed for more than 126,000 in.-lb. capacity, and this was far too small to fulfill the requirements. A new clutch had therefore to be designed to meet the exacting conditions of capacity, operating ease, long wear, and space limitations. The outcome, which is a development of the past 2 years, may be considered a show piece for mechanical ingenuity.

The new clutch, in its largest size, has a torque capacity of 1,000,000 in.-lb. Yet its space requirements are not excessive. This is primarily because it employs the internal-expansion principle in which both ends of each of the three shoes are forced out an equal distance to contact the drum ring. Under this arrangement all parts of each shoe are expanded with equal force against the ring, as contrasted against the hinged-type expanding shoe in which one end remains stationary while the shoe is pressed against the ring with varying degrees of force throughout its length. When the entire length of shoe is applied with equal force, the friction area need not be so large as would be required for the hinged-type shoe.

The new internal-expanding clutch is made partly self-energizing so that the friction in the clutch will come to the aid of the driller when he operates the lever to engage it. However, since the clutch is only 50 per cent self-energizing, it does not tend to grab. Long wear is obtained


SINGLE POINT ADJUSTMENT FROM ANY OF THESE 3 POINTS.
OILLESS BEARINGS REQUIRE NO LUBRICATION
CLUTCH RING
BRAKE RING
COUNTERWEIGHTS BALANCE AGAINST CENTRIFUGAL FORCE
SPROCKET BOLTS TO THIS SPIDER
PIPE FOR CIRCULATING COOLING WATER
WATER COOLING SPACE BETWEEN RINGS COOLS BOTH BRAKE AND CLUTCH
HARDENED CAM
½ REGULAR BRAKE LINING
BALL BEARING SHIFTER YOKE
WATER INLET AND OUTLET
SHOES EXPAND ON BOTH ENDS—GIVING MAXIMUM HOLDING POWER AND LONGEST WEARING LIFE.

The internal-expanding friction clutch used on the low-speed drum drive has a torque capacity of 1,000,000 in.-lb. and is water-cooled

because the linings on the shoes wear evenly throughout their length rather than wearing in the form of a taper from one end to the other, as is the case on the hinged-type shoe. Destruction of the lining by burning is defeated through the use of a fully enclosed water course which occupies a space between the clutch ring and the concentric brake ring of the external-contracting brake, making this the only water-cooled friction clutch manufactured today.

In order to bring about quickest possible operation the new friction clutches on the hoist drum are air-operated from the driller's position. Manual control is also available at all times, and in case the air supply should fail, the manual control is used.

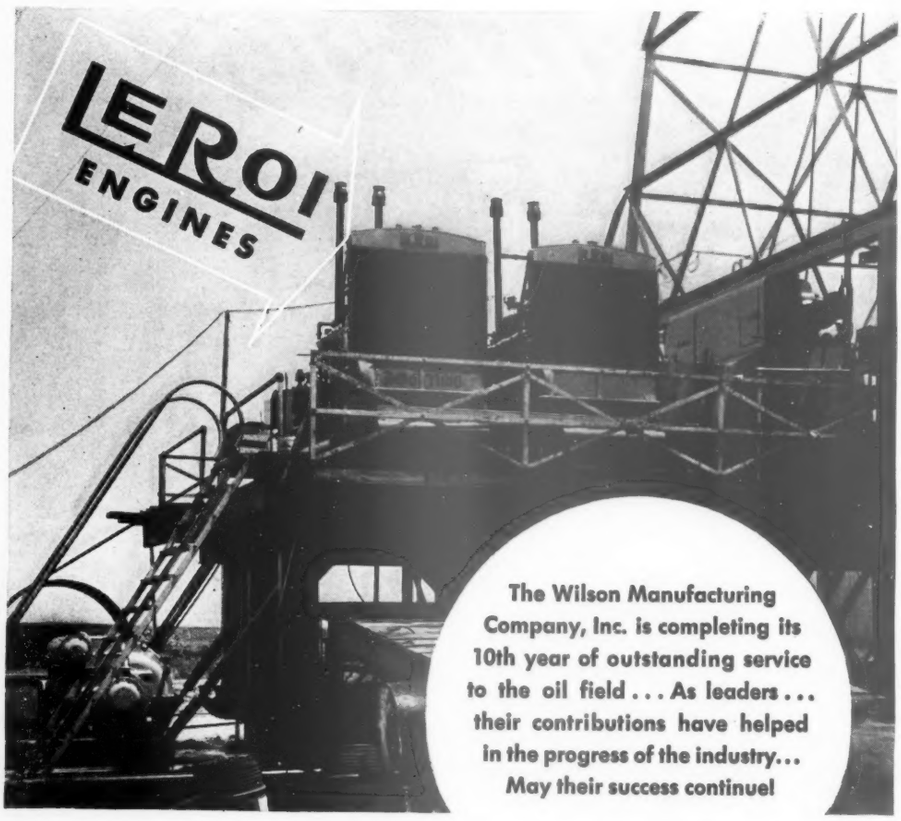
Improved Brakes

Some of the recent improvements made on the Wilson rig have been concerned with brakes. The alloy-steel brake rings on the hoist drum are now ground, flame-hardened, and polished to minimize wear in so far as possible. These brakes in service are cooled from within by a fully enclosed circulating-water system.

The hand-brake lever on the late rigs is equipped with a friction latch which permits locking the brake lever in any chosen position. This provides a feed control for the drill pipe that will maintain a uniform bit pressure as low as one-half point on the weight indicator. It also acts as a very worthwhile safety feature since it eliminates tying down or weighting the brake lever.

Some time ago the position of the Parkersburg hydromatic brake on rigs of this type was improved by introduction of what is known as cradle mounting. Under this innovation a jaw clutch and a flexible coupling are placed between the hydromatic brake and the hoist drum, making it possible to disengage the brake during operations in which it is not needed. While this development was not the work of Wilson Manufacturing Co., it was perfected when this company made use of a remote-control clutch lever which made it possible for the driller to engage or disengage the hydromatic brake at will without leaving his customary position. Since the clutch can now be operated conveniently, the driller engages and disengages the hydromatic brake with each removal of a stand of drill pipe. When the brake is disengaged the block and empty elevator fall much more rapidly, thereby making for better drilling time.

Through the use of air controls the automatic transmission shift is made possible. The driller



The Wilson Manufacturing Company, Inc. is completing its 10th year of outstanding service to the oil field . . . As leaders . . . their contributions have helped in the progress of the industry . . . May their success continue!

...ASSURE DEPENDABLE DRILLING POWER

Available in five sizes ranging from 65 to 418 HP. Le Roi Engines are specially designed for dependable, economical oil well drilling. All sizes can be equipped to burn gasoline, natural gas or butane.

Soundly designed, ruggedly built, operating at conservative speeds, Le Roi Engines provide uninterrupted power equal to the most severe demands.

Write for bulletin on the complete Le Roi Engine line for all classes of oil field service — sizes from 2½ HP up.

LE ROI FEATURES
✓ Overhead Valves
✓ Water-Cooled Exhaust Manifold
✓ Dual Ignition
✓ Operate On Gasoline, Natural Gas or Butane

LE ROI COMPANY
MILWAUKEE, WISCONSIN TULSA, OKLAHOMA

SOUTHERN ENGINE & PUMP COMPANY
Houston • Dallas • Kilgore • Brownwood
Corpus Christi, Texas

GENERAL MACHINE & SUPPLY CO.
Wichita Falls • Odessa, Texas

WESTERN MACHINERY CO.
Salem, Ill. • Evansville, Ind.

turns the speed-selector handle to the next speed he expects to use while the rig is still running. Then he steps on the master clutch and the transmission automatically changes smoothly into the new speed. Besides speeding up operations, this shift eliminates chain breakage due to shock, because shifting can take place only under the most favorable conditions.

Cathead Safety Brake

Catheads usually represent a constant source of danger about the drilling rig. If a load is being hoisted by the catline and the loaded line crosses over the layer of rope on the cathead, then the line held by the operator becomes fouled. If the operator becomes entangled in this loose line he may be injured or killed before the line shaft can be stopped. If, while the cathead is not being used, rope should become tangled about it, the loose coil may catch the driller unaware. Fortunately the line on the cathead must become tangled or crossed before a serious accident is likely to occur. Thus by designing a device that will stop the cathead immediately when the line becomes fouled, Wilson Manufacturing Co. was able to eliminate cathead danger. The safety device is pictured on Page 77. When two thicknesses of rope become present on the cathead they operate a lever which disengages the main clutch and applies a powerful brake which stops the line shaft within one-quarter turn. This brake also holds the cathead to prevent dropping the load which may be on the catline.

Streamlined for Safety

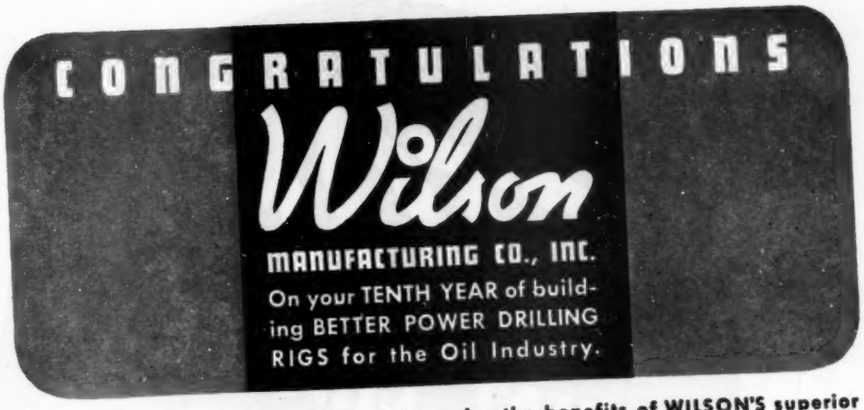
Appearance of the rotary rig has been the latest feature considered. However, the rounded corners and fully enclosed chains and sprockets which produce the streamlined appearance of the Wilson rig have a more significant meaning. Safety of the driller and his crew is taken into account throughout the design.

More than ever before all controls and instruments are located for the convenience of the driller. A built-in protected instrument panel tells the driller whether or not the engines are compounded properly and shows the speeds of engines, rotary table, and pump. Tachometers on the instrument board show individual engine speeds for whatever number of engines are used. Outside calibrated dials on these tachometers show speeds of rotary table and pump while drilling ahead. By charting pump and table speeds for different formations, the speeds that will produce the most hole can be found.

For use with gas, gasoline, or butane engines, vacuum gages are placed on the instrument panel to indicate the amount of power delivered by each engine so that the engines can be properly compounded with each carrying its share of the load. Throttle controls for each engine are placed immediately below the instrument panel and by means of these the engines are regulated to bring about identical readings on the vacuum gages. When diesel engines are used, pyrometers are substituted for vacuum gages.

Ignition switches for engines are customarily mounted on the built-in panel. Air-pressure gages for drum-clutch and transmission-shift controls are also included.

Early in September a Wilson rig powered by internal-combustion engines completed a well which resulted in California's first major discovery in more than a year. This was Russel E. Havenstrite's No. 1 Lincoln, near the Santa Clara River in the Newhall-Castaic area, the new field being known as the Del Valle field. The discovery well was drilled to a depth of 6,948 ft., and the rig was used to run 6,653 ft. of 8⅝-in. casing. Another rig of this kind was used to drill Richfield Oil Corp.'s Wheeler Ridge test to a depth of 11,004 ft. In drilling the comparatively shallow wells in North Texas, one smaller rig of similar design has completed 57 wells without a breakdown.


CONGRATULATIONS
Wilson
MANUFACTURING CO., INC.
On your TENTH YEAR of building BETTER POWER DRILLING RIGS for the Oil Industry.

TEN YEARS AGO, WILSON started the manufacture of DRILLING RIGS. Previously, WILSON had been building power equipment since 1923.

Today, WILSON DRILLING RIGS and HOISTS embody all the advantages resulting from these many years of experience, plus the benefits of WILSON'S superior engineering and inventive ability.

We are pleased to distribute and service WILSON DRILLING RIGS and HOISTS on the Pacific Coast and proud of our connection with such a progressive manufacturing concern.

ROY HITCHCOCK — CHES BRALY

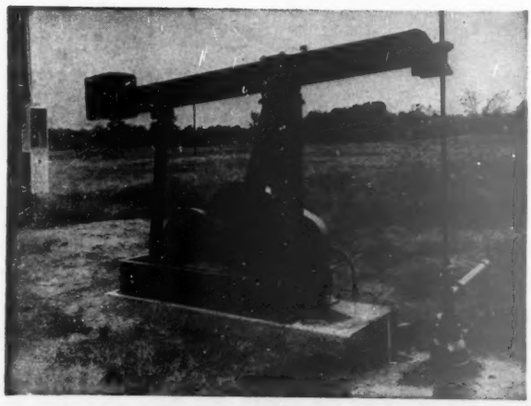
Ten years ago, the Wilson Manufacturing Company started to build Drilling Rigs. Since that time Wilson Rigs have made outstanding contributions to the stamina, economy, flexibility and speed so necessary to profitable drilling.

ENSIGN congratulates the Wilson Manufacturing Company on 10 years of service to the oil industry. Natural Gas and Butane engines used on Wilson Power Rigs are ENSIGN-equipped.

For the BEST in Carburetion —always specify ENSIGN.

ENSIGN
CARBURETOR CO., LTD.
HUNTINGTON PARK, CALIF. • DALLAS, TEXAS • CHICAGO, ILL.

USE Utility Electric Power!



★ "Stop that Charge" means just as much in the oil field as it does on the football field. More so, in fact, for men in the oil industry must wage incessant warfare against the ever-mounting costs of oil production. Small wonder, then, that oil men in ever-increasing numbers are putting Utility Electric Power in operation wherever and whenever costly power charges appear.

These men have learned to their great satisfaction that Utility Electric Power rapidly and efficiently stops unnecessary charges such as: Fixed charges, downtime, etc. These men know their cost sheet will prove conclusively that Utility Electric Power keeps operating expense at a minimum. Low in first cost, economical in maintenance, and greater salvage value. Your nearest electric power service company will gladly give you facts and figures concerning your power needs. Call or write them today!

PETROLEUM ELECTRIC POWER ASSOCIATION

FIELD DEVELOPMENTS...

HIGHLIGHTS FROM THE WEEK'S NEWS—

ILLINOIS—One Trenton test is showing up as a producer while another appears favorable. Gallatin County provided the pool of the week.

CALIFORNIA—Operators are trying to bring production down to demand but are meeting opposition to reducing top allowables in deep wells.

LA-ARK-TEX—A blowout in the top of the Travis Peak formation gave Lisbon a new producing horizon.

KANSAS—An Arbuckle lime pool was opened in Rice County. Extension wells were completed in the Kraft area, Barton County, and the Keesling area, Rice County. A wildcat in Barber County was to test showings of oil in Viola lime.

OKLAHOMA—The fifth and sixth producers were being completed in the Cumberland pool, Marshall County, and two new tests were started. A Creek County wildcat was showing as a 50-bbl. producer in Wilcox sand to open a pool about 1½ miles northwest of the Stroud field.

LOUISIANA GULF COAST—Outpost wells in proven fields attract attention. Location for several interesting wildcats reported.

WEST CENTRAL TEXAS—Three new wildcats were staked in as many West Central Texas counties during the week past. New development is seen for the Dobbs Caddo lime field in Eastland County as several locations were made during the week.

TEXAS GULF COAST—Wildcat southwest of Ganado townsite, Jackson County, shows for producer, but still in the testing stage. Red Fish Reef area, Galveston Bay, receives second producer.

SOUTHWEST TEXAS—Two new oil fields opened on Frio-Vicksburg trend in Jim Wells and Starr counties. Crude production opened on southeast flank of Agua Dulce gas field, Nueces County.

WEST TEXAS—A 1½-mile south extension for the Foster field, Ector County, as well as possibilities for a discovery in the southern part of the same county, were among highlights of the week in West Texas.

NORTH TEXAS—Discoveries were indicated in northern Montague County and in extreme eastern Clay County during the week. A total of 10 new deep wildcats starting in the North Texas district.

EASTERN TEXAS—There is a decided upturn in field activity in this district, new completions and locations both registering far above the normal. A total of seven new wildcat tests reported during the week in the district.

COMPLETIONS IN ALL FIELDS . . .

(Week Ended October 12, 1940)

	Oil	Gas	Dry	Total	1940 total comp. to date	1939 total comp. to date
N. Y., Pa., and W. Va.	83	21	9	113	4,870	2,845
Ohio	4	3	20	27	914	630
Indiana	6	2	3	11	358	243
Illinois	48	0	15	63	3,007	2,797
Kentucky	3	7	6	16	385	564
Michigan	16	3	11	30	927	1,145
Kansas	33	0	6	39	1,390	1,023
Oklahoma	20	5	10	35	1,404	1,394
Texas:						
North Central Texas	43	1	24	68	2,271	1,867
West Texas	33	0	2	35	1,459	1,430
Texas Panhandle	10	1	0	11	471	330
Eastern Texas	18	6	3	27	489	569
Gulf Coast Texas	20	2	4	26	993	1,060
Southwest Texas	17	1	12	30	1,687	1,921
Total Texas	141	11	45	197	7,370	7,177
North Louisiana	10	1	6	17	489	425
Louisiana Gulf Coast	16	0	2	18	806	552
Total Louisiana	26	1	8	35	1,295	977
Arkansas	0	2	0	2	145	205
Montana	1	1	1	3	175	133
Wyoming	2	1	1	4	130	101
Colorado	0	0	0	0	12	18
New Mexico	4	2	4	10	440	450
California	11	0	3	14	808	719
Miscellaneous	1	0	1	2	172	43
Total United States	396	52	137	585	23,802	20,472
Total previous week	427	46	110	583		
Week ended Oct. 14, 1939	330	59	118	507		

SUMMARY OF OUTSTANDING FIELDS . . .

(Week Ended October 12, 1940)

FIELD—	Active operations	Oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS					
K.M.A.	56	11	6,543	1,476	36,858
Wasson	35	9	7,226	963	33,696
Ector County	48	7	6,525	2,306	48,050
Hull-Silk	62	5	4,028	365	10,847
East Texas	22	10	513	25,933	374,950
OKLAHOMA					
Oklahoma City	11	0	0	839	82,850
Cumberland	9	0	0	9	1,800
KANSAS					
Bornholdt	13	1	400	127	2,630
Silica	11	2	103	696	15,400
Stoltenberg-Wilkins	14	1	350	150	3,250
Trapp	11	3	1,362	655	16,200
LA-ARK-TEX					
Olla, La.	9	2	355	46	4,725
Cotton Valley, La.	4	0	0	158	13,435
MICHIGAN					
Adams	19	1	1,680	19	1,299
ILLINOIS					
Salem	48	9	1,469	2,927	141,226
Louden	37	11	1,391	992	70,346
Centralia	8	0	0	716	21,200
Other basin fields	247	28	4,710	2,502	107,360
Old fields	.....	.....	.....	.....	11,525
NEW MEXICO					
Lea County	44	3	336	2,572	82,610
Eddy County	52	0	0	618	16,260
MISSISSIPPI					
Tinsley	6	1	95	83	14,820

By
L. P. STOCKMAN

Production Curtailment Is Big Problem in California

LOS ANGELES, Calif., Oct. 14.—Considerable progress has been made during the past 10 days in making curtailment of production more effective in California and unless something unforeseen develops crude-oil production during the month of October 1940 will drop below 600,000 bbl. daily for the first time since March 1937. Actual crude-oil production has been below 600,000 bbl. per day on several occasions since 1937 for a period of a week or two, but actual production has not been down below this amount for any complete month. Crude-oil production for the first 8 days of October averaged 622,723 bbl. daily, which is 12,161 bbl. lower than production during the first 8 days of September, the preceding month.

Much depends upon the action of Kenda and Standard Oil Co. with respect to curtailment activities in the Kettleman North Dome Association, but if both go all the way and meet their respective allotments the biggest hurdle will have been overcome. Both Standard Oil Co. and Kenda have reduced crude-oil production about 4,000 bbl. each with the result that actual production of the Kettleman North Dome field is only about 10,000 bbl. per day above the field's allotment. A final decision will be reached on October 15, at which time directors of Kettleman North Dome Association will either approve or disapprove the action already taken and authorize a further reduction to the prescribed allotment or indicate their refusal to do so. This will be a very important meeting because if these operators decide to reduce actual production to the prescribed allotment they will force operators in other fields to do likewise. There has never been any question about curtailment on the part of Kettleman operators because they have always kept production down to or below 50,000 bbl. per day. The only question has been with respect to the allotment assigned the field.

The fields that have consistently overproduced include Kettleman North Dome, Midway-Sunset, Wilmington, Elk Hills, Santa Maria Valley, Long Beach, Rosecrans, Dominguez, Huntington Beach and Santa Fe Springs in the order named. This group of 10 fields is responsible for more than half of the total overproduction each month. If Kettleman operators make the necessary reduction to reduce actual production to the prescribed allotment it is generally believed that most of the current excess production in other districts will be eliminated by a more strict compliance with proration. There is no possibility of reducing production of the Elk Hills field due to inability of the Navy Department to extend the leases held by Richfield Oil Corp. for the time necessary to produce the amount of production required to be shut in. These naval leases expire over several months from December 1940 to July 31, 1941, and as each lease expires the Navy Department takes possession and suspends operations. Most other fields, however, are expected to reduce excess production within a short time provided that Kettleman North Dome gets down to the prescribed allowable.

Current daily production of leading California fields for the past week follows:

	Barrels
Wilmington	82,050
Midway-Sunset	55,650
Long Beach	42,650
Kettleman North Dome	41,650
Ventura Avenue	33,525
Coalinga	31,250
Huntington Beach	27,150
Santa Fe Springs	25,575
Dominguez	22,250
Santa Maria Valley	21,725

SAN JOAQUIN VALLEY

Wildcat operations in the San Joaquin Basin appear to be easing off somewhat due to inability of prospectors to find any new accumulations of major importance. Several large leases and fee purchases have taken place during the past few months, however, and we may anticipate aggressive exploratory work early in the new year and possibly later in 1940. General Petroleum Corp. has leased and purchased more than 50,000 acres of potential oil and gas land in Fresno and Kings counties during the past few months and is still acquiring acreage in that area where available. The company's latest acquisition was a lease on 5,000 acres from the Kings County Land & Cattle Co. in Kings County and the purchase in fee of 910 acres from the Craig Oil Co. Previously General Petroleum had taken leases on 6,000 acres from Allan Balch and 10,000 acres from the Southern Pacific Land Co. During recent weeks the company has been doing considerable geophysical work in the area in which it has taken large blocks of acreage. If this proves successful the company will drill at least one wildcat within the next few months. General Petroleum's new leasing in Kings and Fresno counties is the largest since acquisition by Richfield Oil Corp. late last year of 50,000 acres in the southern end of the San Joaquin Valley in Kern County.

Northeast Coalinga Extension

Standard Oil Co. extended the productive limits of the Northeast Coalinga field of Fresno County this week by completing No. 68-7-B on fee-owned acreage in 7-19-16, flowing 2,316 bbl. from the Gatchell zone at a total depth of 8,215 ft. The large production and clean condition of the oil indicate that production may be developed still farther out on the structure. In contrast with this extension of production to the north by Standard Oil Co. property owners and operators holding leases in the Coalinga town-lot section to the north of present development are showing some anxiety over failure of Pure Oil Co. to find the Gatchell oil sand. The status of this well is expected to be determined within the next 300 ft. of hole. The gap existing between the Northeast and Southeast Coalinga fields of Fresno County is gradually but surely being reduced, although there has been no reason to change original expectations that the two accumulations are separate and distinct.

Rio Bravo Field

Superior Oil Co. has started a new outpost in the northern end of the Rio Bravo field of Kern County, and this well, 1 Little, in 27-28-26, is scheduled to get under way within the next 15 days. This new output will be an easterly offset to Superior 1 Mandel and a northeasterly offset to 2 Roe and will be located just west of the center of the section. It should prove of special interest and importance because 1 Mandel is one of the highest wells structurally in the Rio Bravo field.

In the west end of the Rio Bravo field, Superior Oil Co. is making good progress with 1 Curtis in 28-28-25 and should reach the depth at which the productive Rio Bravo and Vedder zones should occur within another week or 10 days. Up in the northern end of the field, Union Oil Co. has just spudded in 1 Crites in 28-28-25, but it will be another 30 days before this well reaches the pay. It would appear to have an excellent chance of resulting in commercial production, although it is only about 3,000 ft. southeast of Superior 1 Riggs, which was drilled to 12,324 ft. without success. In the southwest part of the field, Union has completed 47-34 Kern County Land flowing about 1,000 bbl. per day. No actual gage has yet been taken.

SAN JOAQUIN VALLEY COMPLETIONS

Northeast Coalinga Field

Standard 68-7-B fee 7-19s-16e
Flowed 2,316 bbl., 26.6 gravity, 1.4 per cent cut, 1,287,000 cu. ft. gas, 64/64-in. bean, pressure 250-750 lb., shut-in pressures 1,050-1,150 lb., T.D. 8,215 ft., 7-in. water string cemented 8,146 ft., 100 ft. of 5-in. liner carrying 60-mesh perforations at 8,145-8,210 ft., landed 8,210 ft., top Kreyenhagen 6,810 ft., top glauconitic 7,870 ft., top productive Gatchell sand 8,146 ft. Fresno County.

Standard 68-19-B fee 19-19s-16e
Recompleted flowing 1,010 bbl., 35.4 gravity, 1.6 per cent cut, 15,699,000 cu. ft. gas, 54/64-in. bean, pressures 1,165-2,370 ft., T.D. 8,270 ft., P.B. to 8,236 ft., 7-in. water string cemented 8,073 ft., 247 ft. of 5-in. liner froze 8,247 ft. with perforations 8,182-8,247 ft., cemented through perforations 8,179 ft., gun perf. 8,105-15 ft., ran washer, could not locate perforations 8,105-15 ft., gun perf. 8,120-30 ft., 8,154 ft. of 2½-in. tubing with packer 8,154 ft., originally completed May 31, 1940, flowing 2,232 bbl., 26.5 gravity, clean, 1,776,000 cu. ft. gas, but developed bottom water. Fresno County.

Union 66-18 Cook 18-19s-16e
Flowed 1,358 bbl., 27.1 gravity, 741,000 cu. ft. gas, 22/64-in. bean, pressures 810-1,200 lb., pressures with 9/64-in. bean 1,175-1,350 lb., T.D. 8,235 ft., 5½-in. water string cemented 7,868 ft., 422 ft. of 4-in. liner landed 8,230 ft., 120-mesh perf. 8,200-30 ft., cemented through perf. at 8,193 ft. with 35 sacks cement, 8,199 ft. of 2-in. tubing, drilled by slim-hole method but required 53 days' drilling time from spud to completion, top Kreyenhagen 6,618 ft., top glauconitic 7,639 ft., top productive Gatchell sand 7,893 ft., bottomed in oil sand, total oil sand 342 ft. Fresno County.

Southeast Coalinga Field

Standard 71-19-F fee 19-20s-16e
Flowed 882 bbl., 27.5 gravity, 5.5 per cent cut, 516,000 cu. ft. gas, 20/64-in. bean, pressures 850-1,000 lb., T.D. 7,878 ft., 7-in. water string cemented 7,633 ft., 282 ft. of 5-in. liner landed 7,875 ft., 60-mesh perf. 7,632-7,875 ft., top Kreyenhagen 6,416 ft., top glauconitic 7,567 ft., top productive Gatchell sand 7,580 ft., bottomed in oil sand, total oil sand 298 ft. Fresno County.

Superior 4-B Cagle 6-20s-16e
Flowed 1,320 bbl., 30.9 gravity, 941,000 cu. ft. gas, 28/64-in. bean, pressures 1,160-1,875 lb., T.D. 7,451 ft., 8⅝-in. water string cemented 7,078 ft., 394 ft. of 6⅝-in. liner landed 7,481 ft., perf. 7,077-7,451 ft., 7,432 ft. of 2½-in. tubing, top Kreyenhagen 5,808 ft., top glauconitic 6,960 ft., top productive Gatchell sand 7,078 ft., base Gatchell oil sand 7,445 ft., total thickness oil sand 367 ft., bottomed in silt. Fresno County.

SAN JOAQUIN VALLEY OUTPOSTS

Kettleman North Dome Field

Standard 344-13-H fee 13-21s-16e
Drilling hard sand 9,750 ft.

Standard 1-1-U fee 1-23s-18e
Drilling hard shale 7,288 ft., 9⅝-in. casing cemented 7,123 ft.

Rio Bravo Field

Superior 1 Curtis 28-28s-25e
Drilling sandy shale 10,698 ft. Kern County.

Round Mountain

Spartan Drlg. Co. 1 Hiatt 32-28s-29e
T.D. 2,089 ft., fishing drill collar and core barrel, and cleaning out at 1,894 ft.

Strand Field

Associated 25-7-E Kern Co. land 7-30s-26e
Drilling 8,835 ft. in hard sand and shale.

Wasco Field

Pacific Western 1 Meyer 7-27s-24e
T.D. 13,150 ft., cleaned out to 13,130 ft., formation test 13,130 ft. resulted in recovery of salt water, plugged to 13,035 ft., bridge 11,105 ft., milling window in 7-in. water string to redrill. Kern County.

Wheeler Ridge

Richfield 2 Kern County Land 28-11n-20w
Drilling 8,240 ft. in sand and shale, spot coring. Kern County.

SAN JOAQUIN VALLEY WILDCATS

Cantua District

Texas 1 Everding 24-17s-15e
Drilling 9,370 ft. in hard tight gray sand of Domengine, expect possible productive interval next 150 ft. Fresno County.

Northeast Coalinga District

Associated 1 U.S.I. 6-19s-16e
Drilling 9,020 ft., hard gray siltstone, objective was equivalent of Gatchell sand of Eocene age which was barren, no showings of importance. Fresno County.

Jasmine District

A. J. Borget 1 Quinn 16-25s-27e
Rigging up rotary, expect to find oil sand above 4,000 ft. Kern County.

Kreyenhagen District

Continental 1 Kreyenhagen 4-22s-16e
Drilling 10,038 ft. in hard gray sand and siltstone of Eocene age. Fresno County.

Blackwell's Corner District

Seaboard 66-17 Beer 17-26s-19e
T.D. 7,583 ft., drill pipe stuck 3,460 ft., circulated with oil and recovered, now cleaning out and resuming work. Kern County.

Madera District

Thomas Blake 1 Arnold 22-10s-18e
T.D. 3,218 ft., 7-in. casing cemented 1,900 ft. with 108 sacks cement, will gun perf. at 1,730-1,813 ft. and test. Madera County.

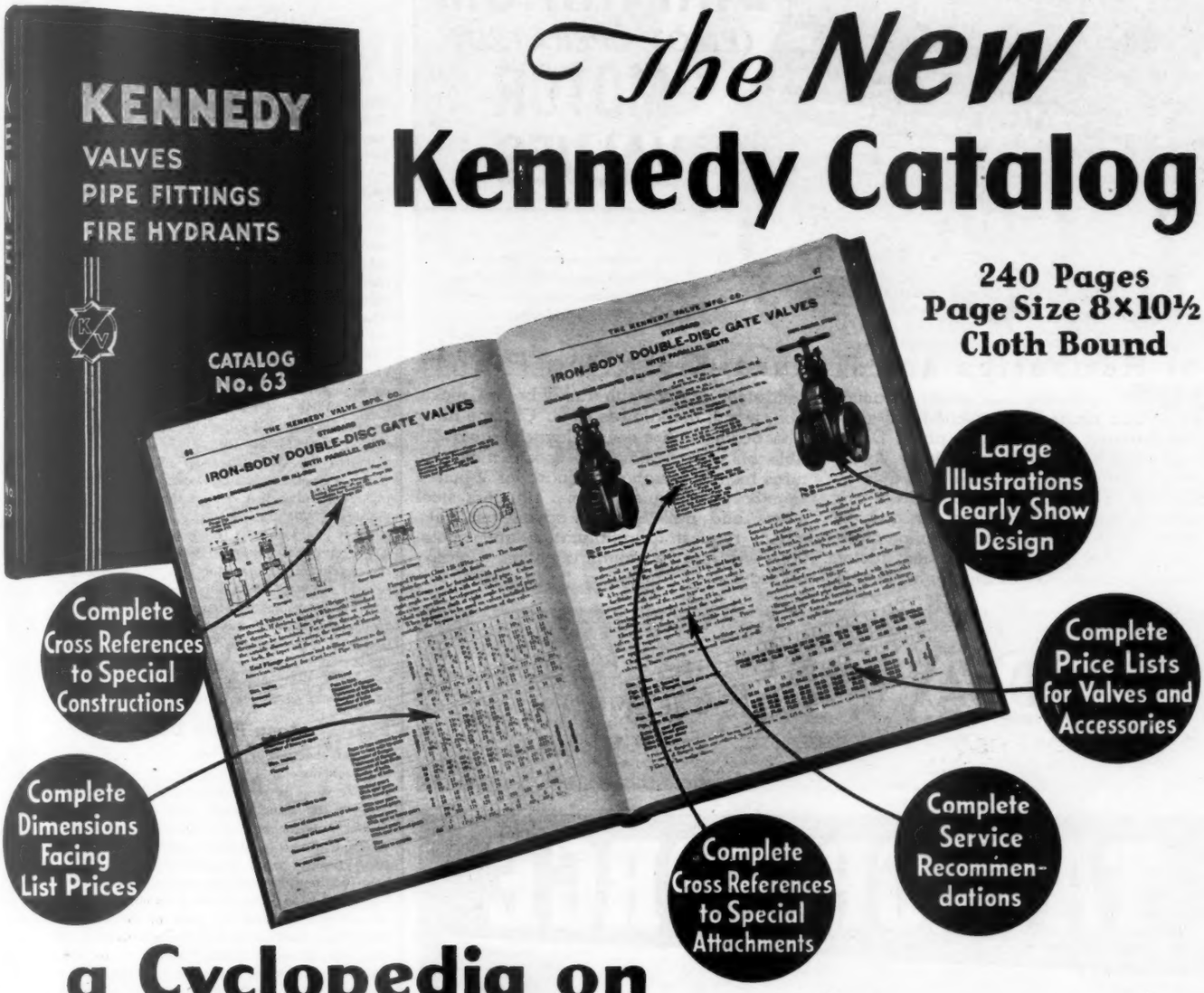
Pyramid Hills District

Associated 31 West Slope 20-24s-18e
Location staked and road being graded, this will be second well drilled on West Slope lease on which Tide Water Associated completed small pumping well earlier this year. Kings County.

Rumsey Hills District

Standard 1 Tippetts 9-12n-3w

The New Kennedy Catalog



240 Pages
Page Size 8×10½
Cloth Bound

a Cyclopedia on Valves, Pipe Fittings, Fire Hydrants

You will find this new catalog a revelation in completeness—on details of design . . . specifications of construction . . . information on correct selection and application . . . accessories and attachments for individual operating conditions . . . and helpful engineering data on pipe lines, flow of fluids, etc. . . . all arranged for quick and convenient reference.

The valves and pipe fittings described and listed in this catalog include bronze and iron body designs for every standard requirement on steam, water, oil, air and gas lines, with sectional views and part lists for every type of valve, and with a special section on valves for the oil and gas industry.

This catalog will prove a welcome aid in assuring the most suitable selection of valves and pipe fittings for your requirements. To obtain your copy, just fill in and mail the coupon, and be sure to do so TODAY.

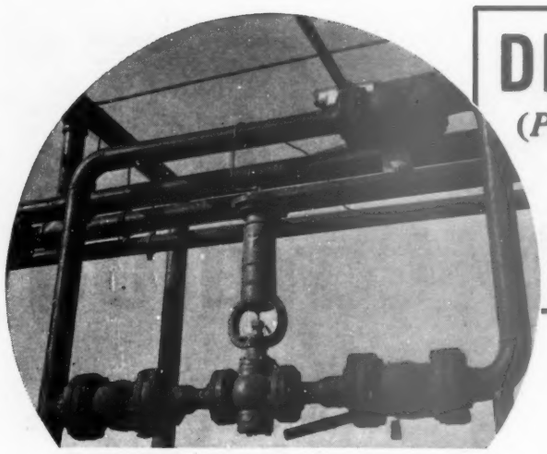
Send the Coupon For Your Copy of Catalog

THE KENNEDY VALVE MFG. CO.
1560 East Water St., Elmira, N. Y.
Please send copy of your new Catalog 63
Name
Position
Company
Address

The Kennedy Valve Mfg. Co., Elmira, N. Y.

KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS



DIAPHRAGM
(*PILOT OPERATED*)
MOTOR VALVES

The picture shows a Davis No. 14C Diaphragm Motor Valve controlling steam pumps in refinery at White Point, Texas.

For Refineries and Natural Gasoline Plants

SMOOTH operation . . . sensitive action . . . and rugged construction are some of the features you will like about Davis' advanced line of Diaphragm Motor Valves for pilot or instrument controlled valve installations. These include both direct and reverse acting types for steam, air, gas, oil, or water lines using pressure, temperature, or liquid level as the controlling factor. Standard valves are available in bronze, semi-steel, or steel with trim of bronze, nickel iron, monel or stainless steel. Chrome alloy steel bodies with special alloy trim are available on order. Standard construction features include parabolic, square, or V-ported semi-balanced inner valves, stainless steel stems and ball bearing adjustment nuts. YOUR request for information and quotations will receive prompt attention. Catalog on request.

DAVIS REGULATOR COMPANY
2543 SOUTH WASHTENAW AVE., CHICAGO, ILL.

TAYLOR FORGE

DON'T confuse welded pipelines with WeldELL pipelines. WeldELLS alone offer all these 8 aids to faster, easier welding

TAYLOR FORGE & PIPE WORKS
General Offices and Works: Chicago, P. O. Box 485
New York Office: 50 Church Street
Philadelphia Office: Broad Street Station Bldg.

WeldELLS Seamless Pipe Fittings for Welding

Drilling sandy shale 1,550 ft., cemented 13⅜-in. surface pipe at 1,104 ft. Yolo County.

Tejon District

Richfield 1 Tejon Ranch 2-10n-19w
Drilling 7,145 ft. in gray sand and shale. Kern County.

LOS ANGELES BASIN

The East Coyote field of Orange County in Los Angeles Basin is rapidly becoming an active area as there are eight wells down to the pay which may or may not prove productive. Several substantial leases have been taken outside the present productive area within the past 60 days and in two cases wells will be drilled if geophysical tests prove favorable. Within the past 2 weeks additional leases have been taken in the West Coyote field and here too we may expect additional drilling. Recently Wilshire Annex Oil Co. recorded a community lease aggregating 107 acres in parcels ranging from 3 to 14 acres which adjoins Standard's tank farm and north of the McNally parcel which Wilshire tied up some time ago. The new parcel recorded by Wilshire Annex Oil Co. as the Coyote Community lease has had several previous tests but none of the various wells drilled to date were carried deep enough to prove conclusive. In recent weeks leases on various parts of the McNally property have been taken by Wilshire Oil Co., Texas Co., and Universal Consolidated Oil Co. Recently Universal Consolidated Oil Co. also took a lease on the 110-acre Rebai parcel in 16-3-11, which adjoins the McNally property and is just east of the refinery and cracking plant of Wilshire Oil Co. Considerable seismograph work is being done in this general area, but no results have yet become known. Severns Drilling Co. focused the attention of operators on the McNally property several years ago by finding production in a deep zone and has since drilled five wells on the property. Previous to this time, Standard Oil Co. controlled all of the productive acreage in the West Coyote field. The upper zones were absent on the McNally property but Severns Drilling has completed several excellent wells in the deep zone.

Long Beach Deep Test

It has been several years since any deep drilling has been done in Los Angeles Basin and while Union Oil Co. is at present engaged in drilling a 10,000-ft. well in the Long Beach field this is the exception rather than the rule. No. 19 Long Beach Community, which Union is drilling to the De Soto zone, is still 30 days away from completion as progress has been held up temporarily by recent mechanical trouble. This deep zone was proved productive by De Soto Oil Co. a few years ago, but none of the three wells that have been finished in that horizon to date has shown any kick. There is some question as to whether the De Soto zone is the equivalent of the zone found by Shell Oil Co. in 11 Nesa at 9,280 ft. a few years ago. This well failed to find commercial production in its deep zone and the well was accordingly plugged back. Because of the lack of deep drilling many of the fields in Los Angeles Basin may contain deep zones that have not been found. Some fields like El Segundo, Playa Del Rey, and Torrance are out of this possible play as several wells have been bottomed in the basement schist.

LOS ANGELES BASIN COMPLETIONS

Dominguez Field

Union 81 Callender 32-3s-13w
Pumped 55 bbl., 29.3-gravity, 30 per cent cut. T.D. 7,618 ft., 7-in. water string cemented 7,090 ft., 552 ft. of 5½-in. liner landed 7,618 ft. Perf. 7,193-7,618 ft., 7,568 ft. of 2½-in. tubing with packer 7,047 ft. Bottomed in eighth Callender zone. Los Angeles County.

East Coyote Field

Hathaway 4 Johnson 18-3s-9w
Pumped 75 bbl., 23.4-gravity, 6 per cent cut. T.D. 4,283 ft. P.B. 3,130 ft., 7-in. cemented 3,300 ft. Gun perf. 2,850-2,940 ft. and 3,005-3,100 ft. Lower zone all gray sand. Orange County.

Long Beach Field

Texas 7 Bauman 19-4s-12w
Pumped 225 bbl., 23.6-gravity, 5 per cent cut. T.D. 4,678 ft., 8⅝-in. water string cemented 3,781 ft., 930 ft. of 6¾-in. liner landed 4,675 ft. Perf. 3,824-4,659 ft., 4,497 ft. of 2-in. tubing. Los Angeles County.

Newhall-Potrero Field

Barnsdall 13 Rancho San Francisco 27-4n-17w
Flowed 1,750 bbl., 32.3-gravity, 1,250,000 cu. ft. gas. Very low gas-oil ratio indicated. T.D. 7,217 ft., 7-in. water string cemented 6,940 ft., 301 ft. of 5½-in. liner landed 7,215 ft., perf. 6,962-7,215 ft., 7,204 ft. of 2½-in. tubing. Completed in third zone which is about 1,000 ft. in Modelo formation of upper Miocene age. Engineers believe there is another 2,000 to 4,000 ft. of Modelo below this depth. Los Angeles County.

Rosecrans Field

Royalty Service 1 Averill 20-3s-13w
Flowed 825 bbl., 31.3-gravity, 2 per cent cut, 895,000

cu. ft. gas., 1-in. bean, pressures 100/750 lb., T.D. 7,863 ft., 7-in. water string cemented 7,494 ft., 410 ft. of 5½-in. liner landed 7,862 ft., perf. 7,502-7,862 ft., 7,798 ft. of 2½-in. tubing. Completed in O'Dea zone of Miocene age. Los Angeles County.

Wilmington Field

Fuller 2 Community 32-4s-13w
Flowed 138 bbl., 15.1-gravity, very little gas. T.D. 3,675 ft., 8⅝-in. water string cemented 3,000 ft., 717 ft. of gravel packed 5½-in. liner landed 3,674 ft., perf. 3,009-3,259 ft., 3,352-3,674 ft., 362 ft. of 2½-in. tubing. Completed in Ranger zone. Los Angeles County.

LOS ANGELES BASIN OUTPOSTS

Long Beach Field

Union 19 L.B.C. 30-4s-12w
Drilling ahead in sand and shale at 3,398 ft. Water shutoff on 13⅜-in. through perforations at 1,412 ft. no good; recemented and proved effective. Los Angeles County.

Rosecrans Field

Universal Consolidated 14 Trust 18-3s-13w
Drilling 8,141 ft. in sand and shale. Los Angeles County.

LOS ANGELES BASIN WILDCATS

Castaic Field

Havenstrite, R. E., 1 Lincoln 16-4n-17w
Now cutting and pulling steel liner. Part of liner cut and recovered. Top liner 6,750 ft. Lost spear and jars on top of liner. Washing over and if not recovered soon will sidetrack. Progress to date has been very slow. Initial production was 755 bbl. of clean 56.8-gravity oil and 9,500,000 cu. ft. of gas. Gas production at times reached 15,000,000 cu. ft. per day and oil production dropped to 350 bbl. daily. Los Angeles County.

Dominguez-Gardena District

Wood-Mellon 1 Wood 31-3s-13w
T.D. 7,795 ft. P.B. 2,400 ft. Redrilled to 6,864 ft. Oil showing logged at 6,750-6,864 ft. but not tested. Los Angeles County.

Inglewood District

Federal 1 Smith 7-2s-14w
T.D. 7,890 ft. P.B. 7,700 ft. to sidetrack drill collar atnd core barrel. Redrilled to 7,805 ft. Reaming. Will try to wash over and recover drill collars and core barrel. Los Angeles County.

Malibu District

Sovereign Oil Co. 1 Malibu 7-2s-18w
Drilling at 2,040 ft. in hard, tight conglomerate with streaks of shale. 505 ft. of 13⅜-in. surface pipe landed. No showings to date. Los Angeles County.

Pico District

Cal-Pico 1 Pico 7-2s-11w
T.D. 7,086 ft. Suspended but not abandoned. Los Angeles County.

COASTAL DISTRICT

Barnsdall 13 Rancho San Francisco has been completed flowing 1,750 bbl. of 32.3-gravity oil and 1,250,000 cu. ft. of gas per day from the so-called third zone, which is in the Modelo of upper Miocene age. There is possibly another 3,500 ft. of Modelo below present production and there should normally prove to be another productive zone or two in this interval. If such proves to be the case the Newhall-Potrero and Castaic fields may ultimately be found to be of primary importance. Tide Water Associated Oil Co. is closely guarding conditions in the Aliso Canyon field of Los Angeles Basin for dubious reasons. To date it has proved to be of secondary importance. R. E. Havenstrite, who ran into a fishing job in attempting to recover the steel liner in his discovery well in the Castaic field on Del Valle anticline, is still held up as a spear and a set of jars have subsequently been lost on top of the liner. Unless an early recovery is made, the operator will mill a window in the 8⅝-in. set at 6,653 ft. and redrill the hole. This well showed an exceptionally high gas-oil ratio and it was found advisable subsequent to completion to take steps to pull the perforated liner and attempt to reduce the gas-oil ratio to cut down gas production in order to preclude initiation of the California gas law and to increase production of crude oil.

Ventura Avenue Deep Test

In the productive Ventura Avenue field of Ventura County Lloyd Corp. is conducting a series of tests on 5 Lloyd, a deep well in the eastern end of the Ventura Avenue structure, and will attempt to make an early production test. This well is bottomed at 9,849 ft. and has a string of 7-in. casing cemented at 9,844 ft. This string of 7-in. was perforated at 8,500-20 ft. and at 8,630-50 ft. and on a formation test of this perforated interval the well flowed at the rate of 1,500 bbl. per day cutting 26 per cent. The hole was then cleaned out to 9,800 ft. Five shots were then made at 8,975 ft.; five shots at 8,890 ft.; four shots at 8,703 ft.; five shots at 8,412 ft., and four shots made at 8,140 ft. The hole was then cemented through perforations at 8,975 ft. and cleaned out to 8,449 ft. On a formation test with packer at 8,151 ft. the well failed to show any life and the hole was then cleaned out to 8,730 ft. On another formation test with packer at 8,467 ft.

(Continued on Page 95)

GOTT WATER CAN
Made in 1½, 3, 5, and 10 gallon sizes.

Gotkool
WATER CANS & COOLERS

GOTT Water Cans are the practical way to keep drinking water cool for long periods, protected from impurities and always handy to the job. Snug fitting large removable top, strongly built to withstand rough usage. GOTT Water Coolers have extra large covers and a handy non-leaking push button faucet. Your Supply Store has them, get one today!

GOTT WATER COOLER
Made in 3, 5, 8, 10 and 14 gallon sizes.

H. P. GOTT MFG. CO.
WINFIELD, KANSAS
KEEP PURE DRINKING WATER ALWAYS HANDY

"Useless delays used to make me see RED!"

"Now when we hit bottom-water I just have the boys fetch some Eagle Lead Wool—and every crack and crevice is plugged tight in jig-time!"

● Eagle Lead Wool is soft and pliable. Rapidly installed with Eagle Wire Containers. Sizes to fit all casings. Shaped like cartridges to carry lead wool to cavity in one mass. Order now through your nearest jobber.

SEALS OFF BOTTOM-WATER PRONTO!

EAGLE LEAD WOOL

EAGLE EP PICHER
THE EAGLE-PICHER LEAD COMPANY
CINCINNATI, OHIO

THESE 3 EAGLE BEARING METALS MEET MOST REQUIREMENTS

Eagle Dreadnaught — for extreme speed and pressure conditions
Eagle Outlasta — for medium speed and pressure conditions
Eagle Durable — for low speed and pressure conditions

NORTH CENTRAL TEXAS

By
R. MARNE SANFORD

Two Montague Wildcats Are Possible Discoveries

WICHITA FALLS, Tex., Oct. 14.—The deep exploratory work in the North Texas district becomes more widespread almost weekly as a total of 10 either new deep locations or old wells rigged up for deepening were reported during the past 7 days. On the discovery side of the activity, wildcats in the Ringgold area of western Montague County and in the Nocona area of northern Montague were both showing for possible field discoveries.

About 1½ miles west of the Ringgold field and in the extreme eastern part of Clay County, Walter Gant 1 Stine, SE SE SE Section 25, Block 4, H.&T.C. Survey, was indicating the opening of a new deep field at the 5,600-ft. level. With the Ringgold field producing from the 5,700-ft. level, the indicated new discovery topped its first saturation at 5,591 ft. after encountering the Caddo lime high at 5,554 ft. Cores from 5,591 ft. to 5,677 ft. recovered broken sections of saturation in lime, the Ringgold field's pay being in the conglomerate. Even the initial significance of the well is not yet known for, when bottomed at 5,677 ft., the pipe was stuck in the hole when attempting to pull and take a drill-stem test. At the close of the week operators were attempting to free drill pipe. The prospective producer is surrounded on three sides by production, the Ringgold field being to the east, the 3,800-ft. Worsham field being about 2½ miles to the south and the relatively new Hapgood field from the 5,900-ft. level being about 5 miles to the southwest.

This new indicated discovery again recalls geological predictions early in the Forth Worth basin play that a large closed structure, believed to embrace several fields, exists on the Clay and Montague county line and northeast, north and northwest of the old 3,800-ft. Worsham field. The discovery of the Ringgold field first substantiated this belief. Then the opening of the Hapgood field added further importance to the prediction. Now the possibility of a third discovery, still on the large 55,000-acre structure, adds even more significance to the area.

In northern Montague County and about 2 miles east of the town of Nocona, Stanolind Oil & Gas 1 Dodson indicated a new shallow discovery early in the week when shows of oil believed sufficient for commercial production were drilled from 2,860-80 ft. The well is ½ mile west of the discovery well in the Benton field, a yet one-well area opened several months ago about 2½ miles east of the Rogers & Rogers field. The Stanolind test, intended as an outpost to the Benton discovery, found its pay in a Strawn section and on a drill-stem test showed 200 ft. of oil and a blow of gas in 30 minutes. Contracted to 6,000 ft., it was drilling below 3,170 ft. at the close of the week.

Archer County, Walter Gant 1 T. A. Hunter, 5,300-ft. Caddo lime test 1,650 ft. from the west and 2,310 ft. from the north lines of Section 7, Block 1, H.&T.C. Survey, 1½ miles southeast of the recently opened Vogtsberger Strawn field.

Archer County, Jack Kadane 1 Griffin, 4,500-ft. wildcat 1,430 ft. from the east and 990 ft. from the south lines of Block 13, Palo Pinto County School Lands, 1½ miles east of the Griffin Strawn field and 4 miles north of the town of Dundee.

Archer County, W. B. Omohundro 1 T. B. Wilson, Caddo lime test, Section 5, Block 3, H.&T.C. Survey; old well abandoned last year at 4,417 ft., rigging up to drill deeper, 1 mile north of Mankins field.

Jack County, Hanlon-Buchanan 1 B. A. Smith, 3,150-ft. test, 8 miles southwest of Jacksboro and 313 ft. from the north and 467 ft. from the west lines of the lease in the S. H. Tilghman Survey.

Jack County, K. N. Davies has reported intentions to drill a 2,500-ft. test in NW cor. E½ Section 2555, T.E.&L. Survey, 1 mile southeast of Perrin.

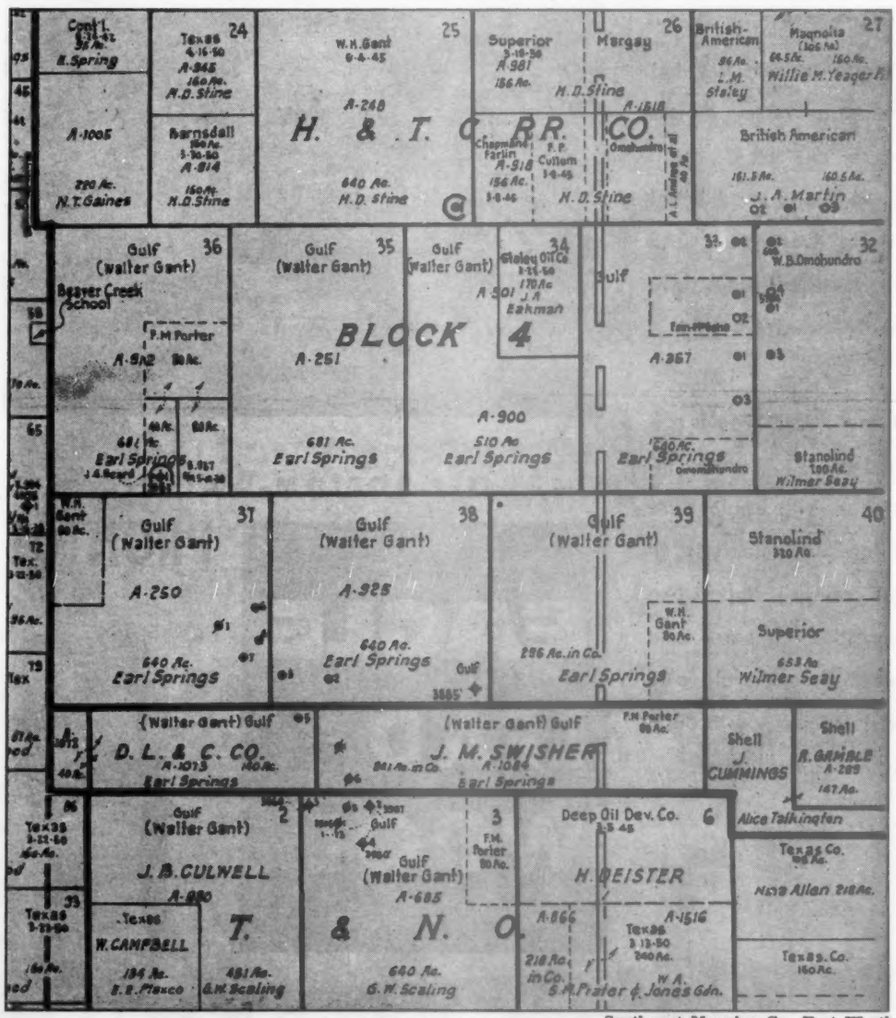
Clay County, E. Carlisle Norwood and associates 1 Shipley, Block 29, Madison County School Lands, 3 miles northwest of Ringgold, old well quit at 5,066 ft., being rigged up for deepening to lower Pennsylvanian and Ordovician levels.

Clay County, L. T. (Bobby) Burns 1 Calloway, Block 9, Hopkins County School Lands, southwest of Blue Grove in southern part of county, old well quit last year at 4,356 ft., being rigged up to deepen to Caddo lime and possibly Ordovician.

Grayson County, W. H. Marshall announces intentions of starting a 5,000-ft. wildcat northwest of Whitesboro in northwestern part of county pending assembling of 1,200 additional acres to his block; location not yet made.

Young County, Ben H. Rankin 1 Marry Logan, SW¼ Block 2, J. W. Duty Survey, 8 miles northeast of Graham and 2 miles west of the Nelson Syndicate field on the Young and Jack county line; 3,250-ft. test.

Foard County, Baldwin-Reed Drilling Co. 1 M. E. Gamble, 660 ft. from north and 330 ft. from west lines of 80-acre tract in Section 314, Block A, H.&T.C. Survey, outpost to recently opened Allee field by Thomasson Oil & Royalties Co.



Southwest Mapping Co., Fort Worth

A new field is being indicated at the Walter Gant 1 Stine, wildcat outpost 1½ miles west of the Ringgold field in Montague County. The new prospective producer is in extreme eastern Clay County and is indicating production from a level different than either the Ringgold, Worsham or Hapgood fields which surround it on three sides

NORTH TEXAS COMPLETIONS

Archer County

Hull-Silk field: Burns 98 White, 800 bbl., 3,884-94 ft.
Dillard 1 Goldsmith, dry at 5,480 ft.
R. P. Dorian 2 Wilson, 800 bbl., 3,758-3,815 ft.
Omohundro 3 Rutty, 553 bbl., 3,760-78 ft.
Phillips 5 Bittle-Novella, 990 bbl., 4,368-4,420 ft.
Southern Pet. 7 Wilson, 885 bbl., 3,871-84 ft.
White 10 Webb, dry at 725 ft.
Archer field: Bridwell Oil 4 Oil Inv., dry at 1,475 ft.
Burns 7 Ahrens, 6 bbl., 502-512 ft.
Hutchinson Jr., 9 Wilson, dry at 1,427 ft.
Burns 100 White, 5 bbl., 447-450 ft.
Burns 103 White, dry at 525 ft.
Mankins Deep field: British American 2 Wilson, 1,320 bbl., 4,665-4,700 ft.
Wildcat: Clark 1 Goldsmith, dry at 5,480 ft.
Anarene field: Home Oil 1 Meade, dry at 1,315 ft.
Young & Woody 1 Meade, dry at 966 ft.
Olney field: R. Horany 1 Phillips, 10 bbl., 1,155-58 ft.
Megargel field: W. C. Young 1 Right-of-Way, dry at 1,350 ft.
W. C. Young 2 Right-of-Way, abandoned location.

Clay County

Thornberry field: Akin 1 Glasgow, 40 bbl. 1,085-92 ft.
Johnson & Kouri 1 Taylor, 10 bbl., 1,313-34 ft.
Norwood 12 Taylor, 10 bbl., 1,120-40 ft.
Wildcats: Omohundro 1 Kempner, junked at 5,643 ft.
Omohundro 1 Wynn, dry at 6,654 ft.
Roberts, Lynch & Jones Associated Oil 1 Edwards, dry at 6,235 ft.

Cooke County

Muenster field: Big Indian Oil 2 Wiesman, abandoned location.
Trumpter Oil 4 Stacey, 12 bbl., 733-47 ft.
T. C. U. Field: Dixon Oil 5 Lynn, 25 bbl., 1,098-1,114 ft.
Voth field: Humble 4 Hellman, 250 bbl., 1,284-97 ft.
Myra field: Lausen 1 King, dry at 1,018 ft.
Walnut Bend field: Sinclair Prairie 1 Atkins, 600 bbl., 4,966-91 ft.

Hardeman County

Wildcat: A. P. Gilbert 1 Weekley, dry at 3,919 ft.

Jack County

Bryson field: Big Six Oil 3 Fields, 24 bbl., 2,356-65 ft.
Panhandle Refining 2 Derrick, abandoned location.
Antelope field: C. D. Bird 5 Jackson, 10 bbl., 482-488 ft.
B. F. Collie 2 Crowley, dry at 490 ft.
T. C. Jones 11 Smith, 11 bbl., 363-380 ft.

Montague County

Rogers & Rogers field: Carnation Pet. 1 M-K-T Railway, abandoned location.
Conner & Curry 1 Gentry, abandoned location.
A. V. Grant 1 Cecil Crenshaw, abandoned location.
Nocona field: C. A. Ray 1 Howard, dry at 1,552 ft.
Benton & Holmes field: United Producers & Continental 3 Braman, dry at 3,979 ft.

Wichita County

K.M.A. field: Consolidated Oil 5 Barnes, 48 bbl., 3,983-4,016 ft.
Consolidated Oil 6 Barnes, 596 bbl., 3,973-4,009 ft.
Fain-McGaha Oil 4 Griffin, 900 bbl., 3,712-73 ft.
Hammon 17 McCarty, 360 bbl., 3,646-3,900 ft.
Hammon, Hanlon & Buchanan 30 Fassett-Tuttle, 369 bbl., 3,907-4,004 ft.
Hunter Oil 18 Waggoner, 40 bbl., 3,811-4,002 ft.
Lincoln & Moore, 1 Bradley, 450 bbl., 3,730-3,827 ft.
Tide Water 24 Pettit, 500 bbl., 3,717-3,823 ft.
Hulda Wallace 3 Straus, 1,100 bbl., 3,761-3,860 ft.
Electra field: Ross Drlg. 7 Waggoner, 5 bbl., 421-431 ft.
Ross Drlg. 8 Waggoner, 9 bbl., 426-442 ft.
Burkburnett field: Norwood 1 Doyle, dry at 1,450 ft.

Wilbarger County

K.M.A. field: J. A. Woods 2 Womack, 1,630 bbl., 3,976-4,041 ft.
Consolidated 4 Ancell, 600 bbl., 3,960-95 ft.
Fluhman field: Pols & Schulz 3 Streit, 480 bbl., 1,442-68 ft.

Young County

Markley field: Chas. B. King 5 Bloodworth, 10 bbl., 536-547 ft.
Chas. B. King 6 Bloodworth, 5 bbl., 537-543 ft.
N. H. Martin & Son 10 Hamilton, 11 bbl., 856-877 ft.
Sewell field: E. W. Robitaille 7 Vaughn, 1,176 bbl., 3,888-4,001 ft.
Newcastle field: Hazel Sparks 1 Clark, dry at 960 ft.
Graham field: A. T. Strohg 1 Fitzgerald, dry at 4,313 ft.

NORTH TEXAS DRILLING REPORT

Archer County

Walter Gant and Tom Medders 1 Vogtsberger, Blk. 3, G.E.C.L. Sur., 1,350 ft. SE of discovery well, 7-in. casing 4,645 ft., show oil 4,651-84 ft., flowed 99 bbl. oil in 3 hr., testing.
Shell 1 Coleman, Lot 3, Blk. 74, A.T.N.C.L. Sur., set 4½-in. 5,458 ft., drilled plug to 5,468 ft., flowed salt water, now drilling below 5,471 ft.

Baylor County

Rogers & Lanfair 1 Howe, J. Lowe Sur., Abst. 572, S.D.O. 2,215 ft.

Clay County

L. T. Burns 1 Calloway, Lot 9, Hopkins County School Lands Sur., Abst. 176, T.D. 5,356 ft., new contract depth 6,000 ft., cleaning out 1,000 ft.
Walter Gant 1 Stine, Sec. 25, H.&T.C. Sur., 6,000-ft. test, 10-in. at 510 ft., cored lime showing oil 5,641-77 ft., fishing.

Cooke County

Humble 1 Paul Rivoire, M. Charco Sur., 10 mi. NW of Gainesville, Abst. 214, drilling 3,699 ft.

Denton County

Amon G. Carter 1 W. P. and A. P. Allen, S. Westbrook Sur., S.D. 4,000 ft., planning to drill deeper.
Harvey Bros. 1 Knox, R. Howard Sur., Abst. 542, old T.D. 1,357 ft., show oil 1,467-93 ft., set 6⅝-in. at 1,465 ft., drilled plug, show oil and gas, testing.

Grayson County

Texas Co. 1 Hutchinson, Samuel Stewart Sur., northeast corner of county, 7,500-ft. test, drilling 1,370 ft.

Jack County

Continental 1 Robertson, M. J. Swan Sur., Abst. 1650, 4,600-ft. test, 7-in. 4,643 ft., testing 2,500,000 cu. ft. gas and spray of oil, drilling 4,688 ft.
R. A. Conkling 1 M. Hoofle, A. James Sur., Abst. 318, 3 mi. S of Antelope, 3,500-ft. test, S.D. 2,410 ft.
Rathke Oil 1 Moseley, J. Harrison Sur., Abst. 259, 6⅝-in. at 4,465 ft., show gas 4,498-4,500 ft.

Montague County

Walter Gant 1 Will Laird, R. T. Millard Sur., Abst. 470, 7 mi. W of Sunset, 6⅝-in. casing at 6,641 ft., T.D. 6,651 ft., preparing to perf. casing and test.
Seitz, Comegys & Seitz 1 Harris, B.B.B.&C. Sur., 10 mi. S of St. Joe, 6,000-ft. test, S.D. 6,016 ft.

Wichita County

E. P. Bowen 1 F. M. McKinley, William Anglin Sur., 2 mi. N of Wichita Falls, contract depth 4,500 ft., drilling 5,110 ft.
E. C. Norwood 1 R. C. Chenault, I.&G.N. Sur., 2 mi. NW of Burkburnett, Ellenburger lime test, drilling 3,310 ft.

Wilbarger County

Charles Barnes and R. A. Andrews 1 Clarida, NE Sec. 97, Blk. 14, H.&T.C. Sur., first report.
Amerada 1 Parker, Sec. 36, Blk. 15, H.&T.C. Sur., 5½-in. 4,407 ft., show oil 4,437-55 ft., 5,000 gal. acid, est. 10 bbl. per hr., still testing.

Wise County

Cranfill & Rogers 1 McKay, Sec. 8, Falls C.S.L. Sur., fishing drill pipe 6,067 ft.

WEST CENTRAL TEXAS

FORT WORTH, Tex., Oct. 14.—New wildcat tests were started in Brown, Callahan and Comanche coun-

Need Line Pipe, Jim?
Get an Ear Full of This . . .

"From now on we're sticking to ARMCO Spiral Welded Pipe. We've learned by experience that ARMCO'S plan for 'selective buying' helps cut costs by giving us the right pipe for the job."

• When you put your line pipe problems up to ARMCO you can sit back, relax, and forget 'em. With ARMCO Pipe it is easy to get the exact size and gage you need. What's more, you can depend on delivery promises. No wonder so many oil men say that using ARMCO Pipe is one good way to knock the spots off costs.

As conditions permit, you can order ARMCO "Spiral Welded" in lengths up to 50 feet. Longer lengths naturally mean fewer sections to handle, fewer joints to weld. Pipe crews really make time. Contractors like to work with ARMCO Pipe; many say it field-welds faster than other types.

Try ARMCO Spiral Welded Pipe on your next gas line. See for yourself how you save time and money. Diameters range from 6 to 36 inches, wall thicknesses from 7/64 to 1/2-inch, with optional coatings and fittings. Write for prices. The American Rolling Mill Company, Pipe Sales Division, 2621 Curtis Street, Middletown, Ohio; 501 Mayo Building, Tulsa, Oklahoma; 3500 Maury Street, Houston, Texas.

MADE ESPECIALLY FOR XMAS TREES

This DURAGAUGE has no equal with its beautiful crystal-clear plastic cover (can't break or shatter like glass). This permits a moisture and dust-proof fit on a non-corrosive phenol case. This Xmas Tree DURAGAUGE is rugged and permanently accurate.

It has a white etched aluminum dial with full 270° arc (any standard graduation). The micrometer pointer makes easy calibration possible in the field.

It is made with a heavy forged steel socket with ½" pipe thread connection. The patented Rotary Movement is non-corrosive, phosphor bronze with monel bushings.

The Xmas Tree DURAGAUGE costs no more than any ordinary gauge not made specifically for Xmas Tree service.

Order Xmas Tree DURAGAUGES from your distributor.

Branch Stocks in Tulsa and Los Angeles. Other branches in Dallas, Houston, Corpus Christi, New Orleans, New York, Chicago, Detroit

ASHCROFT GAUGES MM MANNING, MAXWELL & MOORE, INC. BRIDGEPORT CONNECTICUT

Specify...

HARRISBURG
SEAMLESS STEEL
Bull Plugs

HARRISBURG
SEAMLESS STEEL
Pipe Couplings

HARRISBURG
DROP-FORGED STEEL
Pipe Flanges

HARRISBURG
NELSON-IZED
SEAMLESS STEEL
Pump Liners

Harrisburg Steel Corporation
HARRISBURG · PENNSYLVANIA

Harrisburg Products: Alloy and Carbon Steel, Hollow and Drop Forgings, Pipe Flanges, Seamless Steel Cylinders, Pipe Couplings, Pump Liners, Liquefiers, Bull Plugs and Coils and Bends

ties during the week, as well as reports of two new tests for the Caddo lime Dobbs field south of Carbon in Eastland County.

The Brown County location is Hogan 1 Perry, 1,500 ft. from the north and 1,000 ft. from the west lines of Section 1, Block 1, E.T. Survey. It is contracted to 1,000 ft. and has been drilled to a depth of 820 ft. where it was last reported shut down.

In Callahan County Rhodes Drilling Co. has started its 1 George, a 2,700-ft. test 990 ft. from the north and 330 ft. from the west lines of Section 75, B.O.A. Survey.

In Comanche County E. P. Campbell and associates have spudded and are drilling at 45 ft. at 1 Stark, a 1,000-ft. test located 5,700 ft. from the south and 3,150 ft. from the west lines of the Asa Hoxey Survey.

Dobbs Field

Indications of immediate development for the Dobbs field 2 miles south of Carbon, opened several months ago by Dobbs Oil Corp., Dallas, and stimulated considerably 2 weeks ago by the completion of a large outpost well by C. L. Mahaney, Dallas, were seen as the week closed. Two acreage deals north of the three wells in the field are expected to necessitate immediate starting of outpost wells.

J. O. Fox & Son, Dallas, is reported preparing to move in spudder to start 1 Vaughn, on a lease about ¼ mile north of the three wells. The lease was reported acquired from Dobbs Oil Corp. for the consideration of $100 per acre.

Harry Moss, Dallas, is credited with acquiring the Forman lease, Jackson fee, about ¾ mile southwest of the new Mahaney well. Dobbs Oil Corp. is preparing to start a new well east of the Mahaney producer, while Gallagher & Lawson, Eastland, plan a test on the R. C. Morris lease, south of production.

Concho Discovery Gaged

Final gage has been reported on the Floyd C. Dodson 1 Robert Wilson, discovery well in Concho County which has been testing for several weeks. Located in Section 1, Thomas Green Survey, the well made 50 bbl. of oil in 11 hours, pumping, after a 3,000-gal. acid treatment from 3,753-59½ ft. No further development has been indicated for the field.

WEST CENTRAL TEXAS COMPLETIONS

(24-hour gages)

Comanche County

Wildcat: Crenshaw 1 Stark, Asa Hoxey Sur., Abst. 423, dry at 750 ft.

Concho County

Wildcat: Dodson 1 Wilson, Sec. 1, Thos. Green Sur., 50 bbl., 11 hr., pumping, after 3,000 gal. acid, 3,753-59½ ft., total depth.

Erath County

X-Ray field: Dillingham 1 Moring, treated 3,652-3,606 ft. and shot 3,226-56 ft., dry at total depth 4,043 ft.

Jones County

Wildcat discovery: King Oil 1 Olson, NE NE Sec. 189, B.B.B.&C. Sur., 263 bbl. in 8¾ hr., flowing through tubing after 250 gal. acid., 3,217-37 ft. in Palo Pinto lime.
Nowles field: Dean Bros. 1 Carlton, dry at 3,500 ft. in Palo Pinto lime.
Wildcat: Farris 17 Guitar, Sec. 44, Blk. 15, T.&P. Sur., dry at 3,602 ft.
Akard field: Ungren & Frazier 3 Akard, 132 bbl., tubing, 40-qt. shot, 2,128-43 ft.

Shackelford County

Lynch field: G. Bowers 2 Sedwick, 50,000 cu. ft. gas, 357-358 ft.
Ghio field: Baker 1-A Ghio, 8 bbl., 589-601 ft.
Baker 2-A Ghio, 5 bbl., 582-596 ft.
Sedwick field: Roard 15 Hickman, 35 bbl., 674-676 ft.
Grossenbacher 10 Hickman, abandoned location.
Grossenbacher 12 Hickman, abandoned location.

WEST CENTRAL TEXAS DRILLING REPORT

Brown County

Hogan 1 Perry, NW part Sec. 1, Blk. 1, E.T. Sur., 1,000-ft. test, S.D.O. 820 ft.

Callahan County

N. D. Gallagher 1 E. Grisson, SE part Sec. 2, Blk. 8, S.P. Sur., top lime 1,695 ft., S.D. 1,703 ft.
Rhodes Drilling Co. 1 N. M. George, NW Sec. 75, O.A.L. Sur., 4 mi. E Baird, 2,700-ft. test, prepare to spud.

Coleman County

Stuard 1 Minear, E. V. Otaw Sur. 244, location.

Comanche County

Campbell 1 Stark, SW part of Asa Hoxey Sur., drilling 45 ft., 1,000-ft. test.
C. L. Lane 1 H. W. Strout, 3,080 ft. from N, 2,200 ft. from E lines of E. D. Corbett Sur., Abst. 154, P.R. to 3,660 ft., 200-qt. shot, testing 3,044-52 ft., prepare to treat with acid.
Lone Star 1 Watkins, Sec. 30, Blk. 3, B.B.B.&C. Sur., 3,000-ft. test, drilling 2,435 ft.

Concho County

Natural Resources 1 Armor, Sec. 105, T.&N.O. Sur., 5 mi. NE of Eden, prepare to resume drilling at 1,565 ft., contract depth 3,250 ft., to Ellenburger lime.

(Continued on Page 100)

Half-Mile South Extension to Foster Pool Indicated

By R. MARNE SANFORD

MIDLAND, Tex., Oct. 14.—Field extensions, new locations, and prospective outpost producers centered interest in West Texas during the week past as extensions were reported for the Foster field in Ector County and the Means field in Andrews County, shows of oil were reported at Pecos County's deep Ordovician wildcat, and several new Ordovician locations were staked in Crane County's new deep field. In south central Ector County and several miles further southwest than the pending extension, a wildcat was indicating a new discovery for the area as the week closed.

The widespread extensions of the past 12 to 18 months in the now combined North Cowden-Johnson-Foster area of Ector County are continuing. About 1½ miles south of the old South Cowden area (so named prior to its linking with Foster proper) Forest Development 1-H Moss, Section 48, Block 43, Township 2s, T.&P. Survey, was cleaning out and testing at the close of the week after being shot with 1,600 qt. from 4,069 to 4,300 ft. Before being shot the hole filled at the rate of 20 bbl. daily.

Some geologists are of the opinion that a new field is in the offing, however, regardless of the fact that in 1934 Humble Oil & Refining Co. drilled a failure to 4,700 ft. between the new well and the Foster field, others think it is a south extension to the field. There are several lean and barren spots within the 23 miles of length of the combined fields in Ector County. The pay section of the new well checks with that of the main field and the oil that has been recovered is of about the same grade and gravity.

Some 5½ miles further south and in wildcat area near the southern border of the county, Forest Development Corp. is indicating the opening of a new field at its 1 Bradley, Section 18, Block 43, Township 3s, T.&P. Survey. The test is bottomed at 4,410 ft. after drilling broken sections of saturation and porosity from 4,350 to 4,410 ft. in dolomite. With a trace of sulfur water noted at total depth, testing is now under way and it is believed the hole will be carried no deeper.

Pecos Ordovician

Taubert, McKee & Siemoneit 1 Crockett, Ordovician wildcat in the Imperial area of northern Pecos County, drew new attention at the close of the week when shows of oil were logged in the Simpson section of the Ordovician. Located in Section 4½, Block 3, H.& T.C. Survey, the well found a thin section of oily sand from 5,270 to 5,271 ft. and was preparing to core at the close of the week. The pay section is 7 ft. higher, structurally, than the first Simpson show found in the old Magnolia 1-A McKee failure 1¼ miles to the north. Checking against shows found in the old 1-A McKee, 1 Crockett is scheduled to encounter prospective pay levels at 5,715-22 ft., 5,735-48½ ft., and at the contact zone of the Simpson and the Ellenburger lime.

Three new locations have been made in the recently opened Ordovician field in Crane County. The new field is about 3 miles southeast of the deep Tubb field on the Tubb ranch and adjoins the southern part of the Sand Hills Permian lime field. Opened by Gulf 1 Tubb, NE NE Section 20, Block 27-B, P.S.L. Survey, several months ago, the area was recently given a two-location northwest extension by American Liberty 10-X Tubb, SW SE Section 11, just to the north. American Liberty has staked an east offset to its 10-X Tubb which is a north offset to the Gulf discovery well. Gulf has staked a west offset to the discovery which is a south offset to the American Liberty extension producer. Humble has located its No. 46-X as a ½-mile north outpost and in the S½ NE¼ Section 11. All tests will be started immediately.

SOUTHERN WEST TEXAS COMPLETIONS

Crane County

McElroy field: Gulf 227 McElroy, 976 bbl., open casing, 690-qt. shot, 2,723-2,917 ft.

Waddell field: Gulf 13 Waddell, 2,774 bbl., open casing, natural, 4,340-4,585 ft.

Tubb field: Humble 3-C Tubb, 405 bbl., ½-in. choke, 1,000 gal. acid, 4,286-4,420 ft.

Crockett County

Soma field: J. K. Hughes 1 Shannon, top sand 970 ft., top Yates sand 1,475 ft., top Soma sand 1,532 ft., dry at 2,643 ft.

Ector County

Foster field: Arrow Drilling Co. 13 H. C. Foster, 1,020 bbl., tubing, 1,500 gal. acid, 4,130-4,305 ft.

Shell 6-C Witcher, 1,055 bbl., tubing, 285-qt. shot, 3,880-4,145 ft.

Johnson field: Atlantic 2-J Johnson, 823 bbl., 1-in. choke, 300-qt. shot, 4,080-4,150 ft.

Great Western 6 Johnson, 847 bbl., tubing, 565-qt. shot, 3,428-4,128 ft.

Goldsmith field: Gulf 312 Goldsmith, 199 bbl., 15 per cent b.s. and w., tubing, 68-qt. shot, 4,148-80 ft.

Phillips-Pure 104 Cowden, 1,897 bbl., tubing and casing, 5,000 gal. acid, 4,125-78 ft.

North Cowden field: Barnsdall 18 Smith, 685 bbl., ¾-in. choke, 160-qt. shot, 4,165-4,250 ft., P.B. from 4,385 ft.

Pecos County

Taylor-Link field: Appleby & Guthrie (formerly Hargraves) 1 University, 253 bbl. oil, 27½ bbl. b.s. and w., pumping, 1,250 gal. acid, 1,705-18 ft.

Lehman field: R. C. Webster 1 Lehman, 17 bbl., bailing, 7-qt. shot, 43-59 ft.

R. E. Clawson 1 Lehman, dry at 53 ft.

R. C. Webster 2 Lehman, 11 bbl., pumping, 41-53 ft.

R. C. Webster 3 Lehman, 10 bbl., pumping, 42-53 ft.

Ward County

Estes field: Gulf 144 O'Brien, 66 bbl., tubing, 310-qt. shot, 2,600-86 ft.

Texas 5-E University, 1,121 bbl., 1.2 per cent water, tubing, 2,620-85 ft.

Winkler County

Hendricks field: Sinclair Prairie 1 Hendricks, old T.D. 2,738 ft., old top pay 2,735 ft., old initial production 765 bbl., new T.D. 2,957 ft., new top pay 2,946 ft., new initial production 162 bbl. oil, 490 bbl. water, pumping through casing.

Sinclair Prairie 2 Hendricks, old T.D. 2,780 ft., old top pay 2,749 ft., old initial production 650 bbl., new T.D. 2,947 ft., new top pay 2,935 ft., new initial production 72 bbl. oil, 278 bbl. water, pumping through casing.

Sinclair Prairie 6 Hendricks, old T.D. 2,727 ft., old top pay 2,719 ft., old initial production 400 bbl., new T.D. 2,890 ft., new top pay 2,888 ft., new initial production 166 bbl. oil, 802 bbl. water, pumping through casing.

SOUTHERN WEST TEXAS DRILLING REPORT

Crane County

Gulf 1-F University, SE SE Sec. 22, Blk. 31, University Sur., drilling 6,804 ft.

Ector County

Forest Development Corp. 1 Bradley, SE SE Sec. 18, Blk. 43, Twp. 3s, T.&P. Sur., drilled broken pay 4,350-4,410 ft., prepare to test.

Forest Development Corp. 1-H Moss, SW NW Sec. 48, Blk. 43, Twp. 2s, T.&P. Sur., T.D. 4,300 ft., shot 1,600 qt. 4,070-4,300 ft., testing.

Crockett County

Moore Exploration and Olson Drilling 1 Couch, W. S. Piggs Sur., prepare to abandon, 2,000 ft.

Hudspeth County

Haymon Krupp 1 Briggs, Sec. 24, Blk. 73, Twp. 7. T.&P. Sur., 5½-in. casing cemented at 6,202 ft., T.D. 6,224 ft., cementing cavings last report.

Loving County

H. C. McAuley 1 E. Hall, SE Sec. 60, Blk. 7, W.&N.W. Sur., drilling 190 ft.

Pecos County

S. D. Pattillo 1 O'Neil, Sec. 74, Blk. 10, H.&G.N. Sur., Ordovician test, drilling 905 ft.

Landreth Prod. 1 McDonald, SE SE Sec. 37, Blk. 11, H.&G.N. Sur., drilling 2,345 ft.

S. D. Pattillo 1 Hoffman, SE NW Sec. 6, Blk. 141, T.&St.L. Sur., 2,000-ft. test, set 7-in. 855 ft., drilling 955 ft.

Taubert, McKee & Siemoneit 1 Crockett, SW Sec. 4½, Blk. 3, H.&T.C. Sur., top Simpson 4,755 ft., checking 27 ft. high on Simpson lime, slight showing of oil in Simpson from 5,270-71 ft.

Presidio County

Wilcox 1 Conring, Sec. 102, Blk. 4, H.&T.C. Sur., running 10¾-in. casing at 1,038 ft., last report.

Wilcox 2 Jones-Coffield, Sec. 38, Blk. 34, H.&T.C. Sur., P.B. to 2,369 ft. from 2,399 ft., preparing to P.B. again, last report.

Sutton County

Domain 1 G. S. Allison, SW NE Sec. 91, Blk. 9, T.W. N.G. Sur., Ellenburger lime test, S.D. 1,098 ft.

Terrell County

E. A. Thomason 1 Phelps, SE SE Sec. 73, I.&G.N. Sur., 5½-in. 1,492 ft., T.D. 1,546 ft.

H. H. Sides 1 Rose, Sec. 15, Blk. 148, T.&St.L. Sur., location.

Reeves County

Roy Johnson 1 Perkins, Sec. 18, Blk. 7-C, P.S.L. Sur., S.D. 1,739 ft.

Upton County

J. F. Slaughter 1 Porter, Sec. 184, Blk. E, C.C.S.D.& R.G.N.G. Sur., location.

B. H. Kean 1 Taylor, Sec. 22, Blk. 2-B, G.C.&S.F. Sur., S.D. 2,670 ft.

Ward County

Fitzpatrick & Slack 1 Wilson, Sec. 145, Blk. 34, H.& T.C. Sur., 1½ mi. SE of discovery well, T.D. 1,055 ft., set 10-in.

Gulf 5 Wristen, Sec. 13, Blk. 5, H.&T.C. Sur., scheduled Ordovician test, top Ellenburger 9,022 ft., P.B. to 8,836 ft., old T.D. 9,167 ft., drilling by pipe at 8,865 ft.

Sinclair Prairie 1 Wirt Davis, 330 ft. NW, 2,310 ft. SW lines, Sec. 32, Blk. 4, H.&T.C. Sur., 3,500-ft. test, broken oil shows from 2,827 to 3,190 ft., drilling again in side-tracked hole at 2,887 ft.

Winkler County

Gulf 147 O'Brien, SE Sec. 11, Blk. F, G.M.M.B.&A. Sur., fishing tools 1,706 ft.

NORTHERN WEST TEXAS

Extending the Means field of Andrews County ½ mile to the west, Humble has started initial testing of its 82 Means, Section 18, Block 35-A, P.S.L. Survey. As the week closed the well was cleaning out at the rate of 16 bbl. of fluid hourly on gas lift, 10 per cent being estimated as basic sediment and water. The hole is bottomed at 4,530 ft. and has been acidized with 10,000 gal. Extension activity in the Means field has been carried on, almost since its discovery, by the one-well-at-a-time method, the majority of the acreage being held by Humble Oil & Refining Co.

North of the Waples-Platter area in the Bennett sector of the large Wasson field in Yoakum County, Forest Development Corp. is drilling below 4,924 ft. at its 1 Whisenant, Section 553. The top of the brown lime was picked up at 4,420 ft. which indicates a considerable thickening of sections since last correlated. Previously checking structurally high, based on the tops of the anhydrite and the Yates, the test is now several feet lower than the wells to the south.

NORTHERN WEST TEXAS COMPLETIONS

Cochran County

Duggan field: Magnolia 1-C Mallett, 229 bbl. with 1.2 per cent water, pumping, 10,500 gal. acid, 5,035-69 ft.

Magnolia 1 Woodley, 383 bbl., ½-in. choke, 10,500 gal. acid, 4,930-85 ft.

Osage 1-A Moore, 607 bbl., tubing, 10,000 gal. acid, 5,000-58 ft.

Gaines County

Wasson field: Amon G. Carter 4-C Wasson, 1,242 bbl., ¾-in. choke, 9,000 gal. acid, 4,910-5,000 ft

Howard County

Snyder field: C. T. McLaughlin 1 Snyder, 45 bbl., pumping, 1,000 gal. acid, 2,635-2,832 ft.

Scurry County

Sharon field: Dobson 5 Burney, 120 bbl., pumping, 630-qt. shot, 2,284-3,425 ft.

Yoakum County

Wasson field: Basin States 1 Law & Fisher, 834 bbl., tubing, 10,000 gal. acid, 4,880-5,221 ft.

Don Danvers 5 Willard, 657 bbl., tubing, 6,500 gal. acid, 5,030-5,245 ft.

Humble 5 Armstrong, 525 bbl., 1-in. choke, 10,000 gal. acid, 4,960-5,130 ft.

Humble 8 Bennett, 977 bbl., ¾-in. choke, 14,000 gal. acid, 4,965-5,210 ft.

J. W. Murchison 4 Willard, old T.D. 5,139 ft., deepened to 5,209 ft., treated 11,500 gal. acid, new initial 1,026 bbl. through 2-in. tubing.

Shell 1-B Hudson, 856 bbl., tubing, 10,000 gal. acid, 4,900-5,115 ft.

Texas Pacific 3 Hearne, 995 bbl., tubing, 10,000 gal. acid, 5,122-5,250 ft.

G. H. Vaughn 1 Smith, 114 bbl., 20 per cent water, pumping, 12,500 gal. acid, 5,050-5,252 ft.

NORTHERN WEST TEXAS DRILLING REPORT

Andrews County

Phillips 1 Embar, 60 ft. S line Sec. 31, Blk. 10, University Lands Sur., cored 4,146-58 ft., slight show 68, T.D. 4,335 ft., P.B. T.D. 4,290 ft., making 3,500,000 cu. ft. gas and spray of oil, last report.

Cochran County

Rhodes & Atlantic 1 Dean, C NE Tract 4, Lge. 89, Lipscomb County School Lands, spudding.

Gaines County

Fred Postello 1 Henry James, SE Sec. 368, Blk. G, C.C.S.D.&R.G.N.G. Sur., location, last report.

Maloney Drlg. Co. 1 A. D. Neal, SW Sec. 34, C.&M. Cert. No. 414, location, last report.

(Continued on Page 116)

Second Wilcox Field Ranks With Olla in Importance

By GEORGE WEBER

SHREVEPORT, La., Oct. 14.—The recently discovered Wilcox production near Jena and White Sulphur, La Salle Parish, showed for a good field last week, as H. L. Hunt brought in 2-A Goodpine Oil Co. The test offsets the area's discovery well, No. 1-A, on the west. The first test showed oil in the Wilcox, but it was completed as a gasser making a small amount of oil.

The second well gaged 816 bbl. through ¼-in. and 14/64-in. chokes and is now flowing about 360 bbl. daily through a ¼-in. choke. Initial pressure gages showed 400 lb. on the tubing and 1,120 lb. on the casing. The Wilcox formation was topped at 2,497 ft. and gas sand was first encountered at 3,374-93 ft. Gas and oil sands were located at 3,440-63 ft., 3,502-12 ft., 3,600-08 ft., and 3,675-85 ft. Total depth is 3,937 ft. A producing string of 7-in. casing was set at 3,937 ft. and perforations were shot in the deepest sand at 3,679-83 ft. for completion. This completion ranks in importance with the discovery well in the new area, for it indicates the presence of good production similar to that at Olla, 18 miles to the north-northwest.

The Wilcox play has extended outward from La Salle Parish to the north, east and west. The most interesting current wildcat is Atlantic 1-C Goodpine, 22 miles west of Olla in Winn Parish. The test is coring below 2,100 ft. with no shows yet. About 70 miles northeast of Olla, a Warren County, Mississippi wildcat, abandoned several months ago, will be plugged back, sidetracked and cored through the entire Wilcox section.

Olla proper continued active with two completions. One of the new wells, Arkansas Fuel Oil Co. 2 A. H. Hopkins, a west edge well on the south end, is the highest in the field, topping the Wilcox at —1,378 ft. subsea. The well encountered the gas cap of the porous sand section in the Wilcox formation, and the gas-oil contact was reported at —2,074 ft. subsea.

At a hearing in New Orleans last week operators asked the Conservation Commission for a 40-acre spacing pattern in the Olla field, and doubtlessly will be granted such a pattern since wells are drilled on 40-acre units at present.

Claiborne Parish Active

Several wildcats, deep-field tests at Haynesville and Lisbon and an edge operation at Sugar Creek, make Claiborne Parish one of the most active in North Louisiana. At Haynesville Ohio Oil Co., drilling below 10,130 ft., is approaching the Smackover lime in 15 Taylor, having encountered no shows in upper formations. Lisbon's deep test, Caruthers, trustee, 1 Simmons unit, is believed in the top of the Cotton Valley formation, although observers do not agree on the top. The Caruthers test encountered 17 ft. of oil sand in the transitional zone directly above the Travis Peak formation. This has prompted further exploration of that section at Lisbon. Oakes et al 1 Whitman, a Pettit producer, is being deepened to the sand section expected at about 5,390 ft. If success is met in these tests Lisbon may see considerable deepening and possibly more deep tests going through the Travis Peak formation and into the Cotton Valley.

New Pay at Lisbon

A new producing horizon was opened at Lisbon, Claiborne Parish, when Oakes, Caruthers & Morelock 1 Whitman blew out while coring in top of Travis Peak formation about 130 ft. below Pettit. The well was former Pettit producer deepened to explore the transitional zone into Travis Peak which has showed oil in another current Lisbon test, Caruthers, trustee 1 Simmons.

NORTH LOUISIANA COMPLETIONS

Bellevue—Bossier Parish

Shell 1 Ardis ..... SE NW NW 26-19-11
T.D. 790 ft., dry.

Sligo—Bossier Parish

Triangle Drlg. Co. 5-A R. O. Roy ..... NW NW 18-17-11
T.D. 3,127 ft., dry.

Caddo—Caddo Parish

J. W. Bailey 3 Collins ..... NW SE SE 2-20-16
Pumping 100 bbl., 4,000 gal. acid, T.D. 1,600 ft.
Oil & Gas, Inc. 3 Stiles 28-21-16
Pumping 20 bbl., T.D. 1,042 ft.
Savage, Rowland et al 5-A Mansfield Oil Co. .....
SE SE SE 1-20-16
Pumping 40 bbl., 4,000 gal. acid, T.D. 1,540 ft.
H. J. Strief 2-B Noel estate ..... NE NW NE 12-20-16
Pumping 5 bbl., T.D. 1,515 ft.
L. L. Sugar 1-A Hicks 32-21-15
Pumping 40 bbl., 5,000 gal. acid, T.D. 1,650 ft.
Texas Co. 7 Hicks & Payne ..... SE SE NE 21-21-15
Pumping 42 bbl. oil, 50 bbl., salt water, T.D. 1,651 ft., 4,000 gal. acid.
Texas Co. 11 Mabry ..... SE SE 15-21-15
Pumping 172 bbl. oil, 50 bbl. salt water, 4,000 gal. acid, T.D. 1,694 ft.

Wildcat—Caddo Parish

J. M. Forgetson 1 Roberts ..... SE SE NW 10-22-15
T.D. 3,225 ft., temporarily abandoned.

Wildcat—Claiborne Parish

A. D. Yeary 1 J. A. Harris ..... SE SW SW 17-19-6
T.D. 900 ft., dry.

Bull Bayou—De Soto Parish

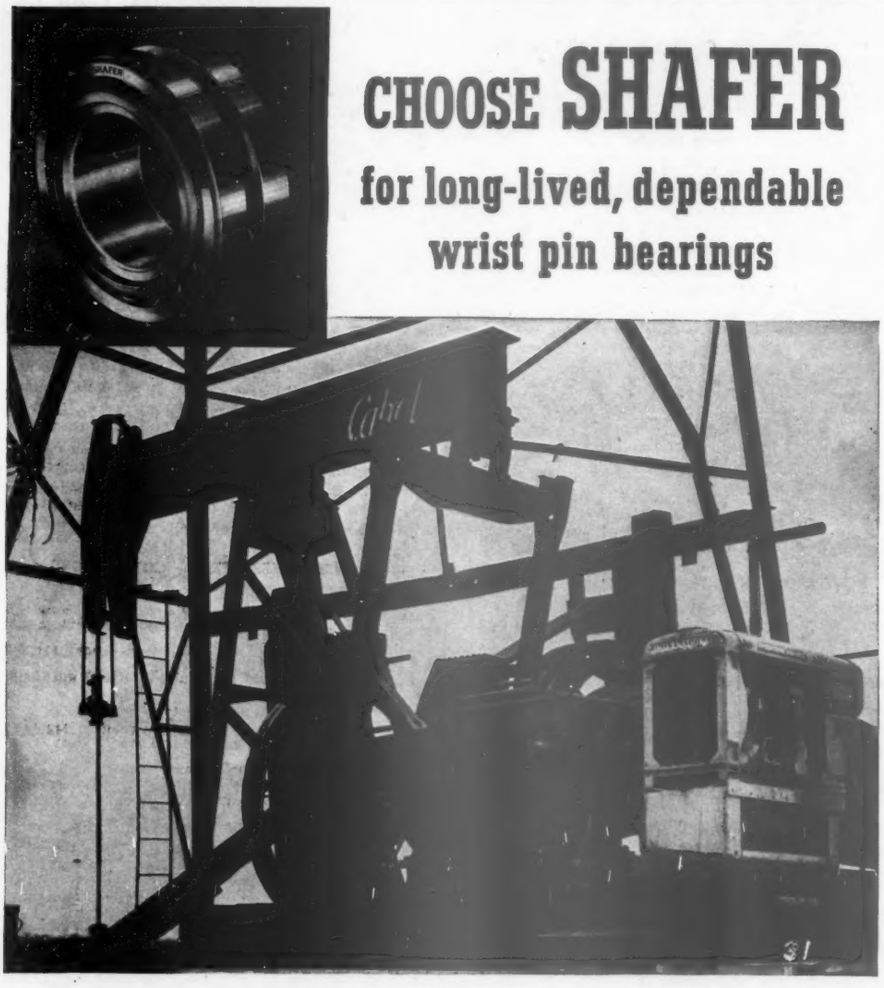
District Oil Co. 1 Frank Grocery Co. . SW SW SE 26-12-11
T.D. 3,000 ft., dry.
W. K. Williams 1 Scott ..... SE NE 19-12-11
3,000,000 cu. ft. gas, R.P. 150 lb., T.D. 885 ft.

Olla—La Salle Parish

Arkansas Fuel Oil 2 A. H. Hopkins .... SW SE 24-10-2e
Perf. 2,212-15 ft., dry, perf. 2,210-12 ft. and 2,208-19 ft., flowed 104 bbl., 3 per cent b.s. and w., 12/64-in. choke, T.P. 200 lb., C.P. 320 lb., T.D. 2,234 ft., Wilcox sand.
Placid Oil Co. 22 La. Central ..... NW SW 36-10-2e
250 bbl., 3 per cent salt water, 14/64-in. choke, T.P. 190 lb., C.P. 410 lb., perf. 2,210-21 ft., T.D. 2,412 ft., Wilcox sand.

Jena—La Salle Parish

H. L. Hunt 2-A Goodpine Oil Co. ..... SE NE 9-7n-3e



CHOOSE SHAFER
for long-lived, dependable wrist pin bearings

Cabot Shops, Inc., pumping unit equipped with Shafer double row wrist pin bearings

Shafer roller bearings provide self-alignment and radial-thrust capacity in a compact bearing ideally adapted to convenient wrist pin installation. The self-alignment is within the bearing itself and provides an automatic compensation for misalignment or shaft deflection. Free-rolling bearing action is maintained unchanged, even under severe operating conditions. Long life and dependable bearing service is assured when you have Shafer Roller Bearings on your pumping units.

Write for Catalog No. 18 with complete information.

CONCAVEX

SHAFER BEARING CORPORATION
35 EAST WACKER DRIVE CHICAGO, ILLINOIS

SHAFER *Radial-thrust* ROLLER BEARINGS

816 bbl., ¼ and 14/64-in. chokes, 12 per cent b.s. and w., Wilcox sand, T.D. 3,937 ft.

Cotton Valley—Webster Parish

Hunt Oil Co. 2 Grant Lumber Co. ..... NE SW 25-21-10 T.D. 5,925 ft., dry.

NORTH LOUISIANA WILDCATS

Claiborne Parish

J. D. Caruthers, Tr., 1 Simmons unit .. N½ SW 2-20-5w (Lisbon deep test), drilling 7,900 ft., black shale.
V. A. Hardin et al 1 Valentine ..... NW NW 31-20-6w Top Pettit 5,824 ft., Travis Peak 5,992 ft., porous sand 6,157-70 ft., asphaltic sand 6,213-31 ft., porous sand 6,317-32 ft., set 5½-in. casing 6,430 ft., T.D. 6,507 ft.
Ohio Oil Co. 15 G. W. Taylor Acct. 1 . NE SW SE 15-23-8 (Deep Haynesville), drilling sand 10,310 ft.
Union Prod. 1-A T. D. Meadows et al ..... NE 18-21-4 Top Cotton Valley 7,423 ft., drilling sandy lime 8,384 ft.

Concordia Parish

K. Hughes 1 Pittsfield ..... 41-8n-10e Top Wilcox 3,525 ft., gas sand 3,487-93 ft., drilling sandy shale 5,810 ft.

De Soto Parish

R. C. Swayles 1 Jackson ..... SE NW SW 36-12-14 S.D. 1,958 ft., repair rig.
Union Prod. 1-B Garrett ..... C W½ SE 33-12-16 Top Massive anhydrite 4,617 ft., base 4,842 ft., porous lime 5,982-95 ft., set 5½-in. casing 6,060 ft., T.D. 6,271 ft.

Grant Parish

Fay Oil Co. 1 Swope ..... SE SE 13-9n-1w T.D. 3,135 ft., waiting on orders.

La Salle Parish

O. K. Allen, Jr., et al 1 Breedlove .. SE SE NW 32-11-3e Old T.D. 2,540 ft., P.B. 2,175 ft., perf. casing 2,164-67 ft., tested est. 5,000,000 cu. ft. gas, R.P. 940 lb., S.I.

Red River Parish

Thornton & LaCroix 1 Prudential Life Ins. Co. ..... SW SW NW 31-11-9
Will set casing, T.D. 1,317 ft.

Sabine Parish

Roy Raines 1 Carter ..... SW NW NW 27-9-11 Top chalk rock 1,950 ft., T.D. 2,036 ft.

Union Parish

Tiki Exploration Co. 1 Jones ..... SE SE NW 30-21-3w T.D. 3,200 ft., set 6-in. casing 2,150 ft., perf. 2,100 ft., tested salt water, S.D.

Winn Parish

Atlantic Ref. Co. 1-C Goodpine ..... SW SE 29-10-2w Set 10¾-in. casing 360 ft., coring 2,100 ft., no shows.

ARKANSAS

Louark 1 Longino et al, 4 miles southwest of the Magnolia field in Columbia County, cored from 7,340-60 ft. last week recovering 20 ft. of sand streaked with lime and a slight show of oil at 7,340-43 ft. Further coring revealed no further shows, and the wildcat is fishing lost drill pipe at 8,000 ft.

Estimated Daily Production

Estimated daily gross production week ended October 11:

NORTH LOUISIANA

	Bbl.
Bellevue	470
Caddo light	5,775
Caddo heavy	2,270
Converse	505
Cotton Valley	*13,435
Cross Lake	3,710
De Soto and Red River	1,015
Elm Grove	325
Haynesville	2,730
Holly	85
Homer	2,830
Lisbon	3,115
Nebo	360
Olla	4,725
Pleasant Hill	90
Rodessa	17,865
Sarepta-Carterville	†265
Sligo	2,270
Sugar Creek	55
Urania	2,435
Zwolle	1,565
Total North Louisiana	65,895

SOUTH ARKANSAS

Atlanta	2,550
Big Creek	100
Buckner	2,040
Champagnolle	1,155
Dorcheat	1,075
El Dorado	1,655
Fouke	230
Lewisville	500
Lisbon	210
Magnolia	21,500
McKamie	420
Miller County	260
Nevada	570
Nick Springs	500
Rodessa	1,810
Schuler	17,150
Smackover light	1,630
Smackover heavy	13,500
Stephens	535
Troy	1,200
Urbana	1,725
Village	1,095
Total South Arkansas	71,410

*3,680 bbl. is distillate. †42 bbl. is distillate. Rodessa, Texas, 17,175 bbl.

Miller County Show

Love, Owens & Carter 1 Montana Realty Co., Miller

(Continued on Page 105)

MODEL "16" . . . HAS MANY MONEY SAVING FEATURES

ACTINIC LAMPS
SLIDING CONTACT
HORIZONTAL WASH
QUICK CHANGE
FIVE DRYING DRUMS

. . and many more!

WHEN YOU BUY PEASE QUALITY YOU ACTUALLY PAY LESS

MODEL "16", the newest Pease Streamlined Blueprinting Machine, possesses many of the design and performance features of the higher priced, widely used PEASE MODEL "22".

MODEL "16" actually prints at 15 linear feet per minute top speed. This means that at ***15 feet per minute,*** Model "16" turns out really ***usable prints.*** **The four PEASE Intermediate Actinic Arc Lamps** in the 42" Model and five in the 54" Model burn for forty-five minutes to one hour without breaking the arc. These Lamps are so placed in relation to the contact glass that maximum use is made of the actinic rays and even coverage is assured.

SLIDING CONTACT, as used in all PEASE Machines, is the nearest approach to Vacuum Frame Contact, in accuracy of reproduction and safety to tracings. It cannot reproduce dirt marks or glass imperfections and it smooths out bulges before they can form damaging wrinkles.

HORIZONTAL WATER WASHING is another of the several features which make high production speed possible in the Model "16" as well as in all PEASE Continuous Machines. With this system, the paper floats without tension, hence, is completely conditioned in clear water yet develops no wrinkles.

THE QUICK CHANGE CHEMICAL APPLICATOR located between the washing and the drying stages makes possible the changeover from blueprinting to negative work or vice-versa, in thirty seconds. This system is very efficient and economical in its use of chemical, saving from 50 to 90 percent of the potash consumed by other machines.

FIVE 8" ALUMINUM DRYING DRUMS dry and calender the prints on Model "16" to an exceptional flatness, which many users have compared to hung wall paper. The drying is gradual, even, and easily controlled through a toggle switch at the front of the machine.

Not only does the fast printing speed of Model "16" assure an exceptional low cost per square foot of finished prints, but Model "16" is also extremely flexible and easy to operate. Its original purchase price is as attractive as its Streamlined appearance.

Don't wait to investigate.

DESCRIPTIVE LITERATURE NOW AVAILABLE

THE C. F. PEASE COMPANY
2691 West Irving Park Road . . . Chicago, Illinois

EASY, QUICK ASSEMBLY

UNIBOLT
THE ONE BOLT COUPLING

Making up the one bolt applies equalized pressure at all points around the seal ring and effects an instant pressure-tight seal.

THORNHILL-CRAVER COMPANY, *Inc.*
Houston, Texas

By
DAL DALRYMPLE

Two Cumberland Producers In Pay; Start Lovell Test

TWO producers were near completion and two new tests were started in the Cumberland pool, southern Oklahoma field that straddles the Marshall-Bryan county boundary. Other features of the week in Sooner State field operations include a wildcat discovery in Creek County and an extension producer in the Lovell area, Logan County. Completions of the week included 20 oil wells, 5 gas wells and 10 dry holes.

Pure Oil Co. 1 Metz-105, NE NW NW 28-5s-7e, Cumberland pool, Marshall County, flowed 2,176 bbl. of oil through 1-in. choke in 21 hours from Bromide pay on initial test. It also flowed 718 bbl. in 24 hours through 16/64-in. choke. It was bottomed at 5,080 ft., with pipe set at 4,860 ft.

The company's 2 Little-100, SW NW SE 26-5s-7, flowed 157 bbl. of oil in 13 hours by heads, and the crew was cleaning out to test the Bromide topped at 4,639 ft. Total depth was 5,097 ft. These two wells are the fifth and sixth producers in the pool. The Metz well extends production one location northwestward.

Pure Oil Co. 3 Little-101, SW SW NE 28-5s-7e, and 2 Little-106, SW NW SW 27-5s-7e, are new starts on the Marshall County side of the pool.

Shell Oil Co. 1 Lynihan, NE SE NE 31-15-7, wildcat in western Creek County and north of the Stroud pool, found Wilcox sand at 4,070 ft., total depth 4,119 ft., and flowed 50 bbl. of oil in 24 hours, with a small amount of basic sediment and water. Testing continued.

Estimated Daily Production

Estimated daily production in Oklahoma for the week ended October 12, and for the preceding week, was as follows:

	Barrels	
	Oct. 12	Oct. 5
Allen	5,100	5,125
Billings	6,000	6,050
Burbank	7,150	7,200
South Burbank	7,925	8,000
Balance Osage	16,250	17,500
Blackwell district	3,300	3,350
Bristow-Slick	5,850	5,925
Chandler	1,050	1,075
Crescent	1,725	1,750
Cromwell	2,875	2,900
Cushing-Shamrock	9,175	9,250
Duncan	3,600	3,625
Edmond	3,950	3,975
Fish	3,100	3,125
Fitts	14,750	14,650
Jesse	2,075	2,075
Graham-Fox	2,375	2,400
Gray	800	800
Healdton	8,650	8,725
Hewitt	4,975	4,775
Keokuk	2,750	2,750
Konawha	1,025	1,050
Lucien	7,200	7,250
Moore	1,500	1,550
Northeastern counties	17,100	17,300
Oklahoma City	82,850	109,000
Olympic	1,900	1,900
Ramsey	3,650	3,700
Sasakwa	1,425	1,450
Sholem-Alechem	2,625	2,725
Seminole district:		
Bowlegs	6,725	6,725
Carr City	2,250	2,275
Dora	2,000	2,000
Earlsboro	4,025	4,050
East Earlsboro	1,775	1,800
South Earlsboro	500	500
Little River	6,400	6,450
East Little River	625	625
Maud	550	550
Mission	1,200	1,200
Seminole	6,625	6,650
East Seminole	1,150	1,150
Searight	1,825	1,925
Total Seminole	35,650	35,900
St. Louis-Pearson	23,200	23,250
Tatums-Tussy	3,250	3,250
Tonkawa-Garber-Thomas	3,575	3,650
Wewoka	1,550	1,600
Yale-Jennings	2,975	3,050
Other pools	82,875	84,450
Total Oklahoma	385,775	416,100

Danciger Oil & Refineries, Inc. 1 Richards, C NE NW 3-17-4w, on the southeast flank of the old Lovell pool, Logan County, continued testing. It was showing for 150 to 200 bbl. of oil daily through various chokes. Gas is estimated at 2,000,000 cu. ft. Production is from Layton pay at 4,850-90 ft., total depth 4,908 ft. Pipe is set on bottom with production through perforations. New tests starting in the area include Danciger 1 Shore, C SW SE 34-18-4w; Big Chief Drilling and Kenneth Ellison 1 Strange, C SW SE 27-18-4w, and H-P Gas Co. 1 Speaks, C NE NE 4-17-4w.

WILDCAT REPORTS

Caddo County

Texas 1 Smith ..... NE NW 2-5-12w
Drilling 3,620 ft. in Viola.

Creek County

Shell 1 Lynihan ..... NE SE NE 31-15-7
T.D. 4,119 ft., flowed 58 bbl. in 16 hrs.

Garvin County

Thompson 1 Alliance ..... SW SE SW 22-4-2
T.D. 3,424 ft., P.B. to 2,900 ft., perf. 2,802 ft., 2,618 ft., 2,335 ft., 900 ft. water in hole, S.D.

Kay County

Amer & Wilson 1 Deimar ..... NE NW SW 28-27-1w
Oswego 3,345 ft., drilling 3,450 ft.

Kiowa County

Artie Baker 1 Coakley ..... NW NE SE 30-7-17w
Drilling 105 ft.

Lincoln County

Kemp et al 1-A Tanner ..... SE cor. 28-17-5
Perf. 3,885-98 ft. and acidized, gaged 4,000,000 cu. ft. gas, waiting on connections.
Mason & Stuart 1 Crane ..... SW NE SE 7-12-5
Checkerboard 3,112 ft., Oswego 3,940 ft., Prue 3,949 ft., dry, drilling 4,086 ft.
Berkey & Mohican 1 Hoffman ..... SE SE SE 18-12-6
Layton 2,093 ft., drilling 2,248 ft.
Berkey & Mohican 1 Tedford ..... NE NE NW 28-12-6
Hogshooter 1,870 ft., drilling 2,775 ft.

Love County

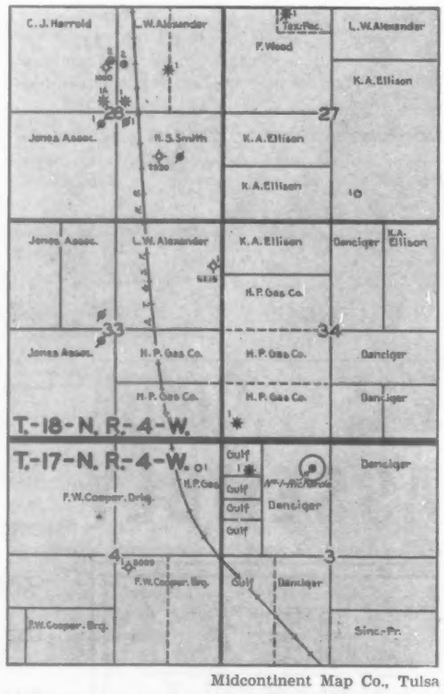
Colvin & Hicks 2 Westheimer ..... C W½ SE SW 27-6s-2
Caney 1,414 ft., Cycamore 1,580 ft., Woodford 2,090 ft., Hunton 2,114 ft., Sylvan 2,233 ft., T.D. 2,277 ft.

Osage County

Millard & Vance 1 Osage ..... SE cor. 5-25-10
Drilling 1,885 ft.

Okfuskee County

W. O. Carter 1 Bucco ..... NE NE SE 20-10-12
Drilling 706 ft.



Midcontinent Map Co., Tulsa

New development is getting under way in the old Lovell pool, Logan County, as a result of a Layton sand strike on the southeast flank at Danciger 1 Richards, 3-17-4w, which was due to be completed for 200 bbl. daily. New location not shown on map is Danciger 1 Shore, C SW SE 34-18-4w

W. B. Pine 1 Armstrong ..... SE SE NE 3-11-10
Drilling 3,336 ft. with 2,400 ft. oil in hole.
Vierson and F. Phillips 1 Leonard SW SE NW 11-13-7
T.D. 3,594 ft., set 7-in. casing 2,598 ft., P.B. 2,668 ft., slight show water and oil.

Seminole County

Mid-Continent 1 Porter ..... NW SW NW 12-7-7
Dense 4,510 ft., dolomite 4,528 ft., first Wilcox 4,555-57 ft., show oil, second Wilcox 4,568-73 ft., drilling ahead.
Stanolind 1 Grisso ..... NE NW SW 15-9-6
Senora sand 2,887 ft., T.D. 2,924 ft., flowed 76 bbl. in 24 hours, to shoot.

Stephens County

Sun Oil 1 Bouing ..... NE SW NW 9-1s-4w
Show black oil 4,160-65 ft., 4,242-53 ft., 4,560-65 ft., drilling 4,590 ft.

Tillman County

Cline et al 1 Staley ..... SE SE NW 10-2s-19w
Set 5-in. casing 5,400 ft., T.D. 6,710 ft., moving in machine.

Wagoner County

Claude Jordan 1 Meriwether ..... NE cor. 16-18-17
Drilling 695 ft.

COMPLETIONS

Caddo County

Ohio Oil 8 Lackey ..... SW NW 11-5-9w
Initial potential 1,368 bbl., Rowe 3,404-23 ft., T.D. 3,470 ft.

Carter County

Turner 1 Ward ..... SW NW NW 28-4s-2w
Pumped 40 bbl., sand and lime 2,234-51 ft., T.D.
Turner 5 Ward ..... SW NE NW 28-4s-2w
Dry, estimated 1 bbl. oil from sand at 2,222-63 ft., T.D.
Gibson 1 Herrell ..... NE NW NW 29-4s-2w
Dry, T.D. 2,380 ft. in shale. Dry sand 2,296 ft.

Grady County

McCasland 2-B Horton ..... SW SE SE 8-3-5w
Pumped 22 bbl., T.D. 2,608 ft., set 8-in. casing, 2,470 ft.

Hughes County

Clark-Couden 1 Barnhart ..... NW SW 32-7-8
Pumped 67 bbl. per day from Booch at 2,882 ft., T.D.

Kay County

Malarnee Oil 1 Harris ..... C SW NE 14-25-1
Wilcox 4,440-45 ft., T.D., H.F.W., P.B. to 3,700 ft., perf. Oswego 3,580-3,640 ft., pumped 17 bbl. oil and 23 bbl. water.

Lincoln County

White 1 Bell ..... SE SW NE 5-14-5
Flow 27 bbl., Prue 3,518 ft., T.D. 3,552 ft.
Kemp 1 Tanner ..... SE SE 28-17-5
Viola 3,885 ft., shot oil, Wilcox 3,952-54 ft., T.D., P.B. to 3,925 ft., perf. and acidized and gaged 4,000,000 cu. ft. of gas.

Noble County

Phillips 72 Billings ..... NE NE 28-23-2w
Initial potential 3,000 bbl., Wilcox 4,322-40 ft., T.D., 7-in. casing set at 4,314 ft.

McIntosh County

Martha Ann Oil Co. 1-A Hill ..... NE NE SE 27-11-15
T.D. 1,108 ft., dry.

Okmulgee County

Seventex Prod. Co. 1-A Horine .. SW SW SW 11-11-13
T.D. 1,416 ft., dry.
J. R. Allen 1-A Hill ..... SW SE SW 24-14-12
Pumped 30 bbl. oil, T.D. 2,034 ft.
J. E. Dow 1-A Garlick ..... NE NE NE 11-14-14
Pumped 2 bbl. oil, T.D. 1,423 ft.
W. W. Wilson 4-A Schacht ..... NW SW SE SE 22-14-14
T.D. 1,168 ft., dry.
Musselem 6-A Milner ..... NW NE NE SW 26-14-14
Pumped 14 bbl. oil, T.D. 1,061 ft.
Wright & Kirkland 4 Green ..... SW NW NE 24-15-12
Pumped 25 bbl. oil, T.D. 1,605 ft.
J. E. Dow 1-B Sapulpa ..... NW NW SE 33-15-14
Pumped 1 bbl. oil, T.D. 1,654 ft.

Okfuskee County

Wells 1 Riley ..... C SE SW 30-10-12
3,000,000 cu. ft. gas, Booch 2,065-74 ft., T.D.
Panther 7-A Sebastian ..... SE NE NE 11-11-11
Dry, T.D. 862 ft., show oil 838-60 ft.

Pontotoc County

Wildcat: Crescent 1-A Thompson ..... NE NW SW 29-3-4
Dry, T.D. 1,675 ft., Viola 1,365 ft.

Pottawatomie County

Smith 1 Bray ..... SW NW NW 5-7-4
Flowed 250 bbl. per day through ¼-in. choke, Hunton 3,955 ft., T.D. 3,986 ft.
Olsen 3 Brister ..... NE SW NE 29-7-5
Pumped 76 bbl., dense 4,115 ft., set 7-in. casing 4,107 ft., acidized with 3,000 gal., T.D. 4,247 ft.

Payne County

Oklahoma Gas Plants 1-A Minnick ..... NE NE 3-18-6
750,000 cu. ft. gas, Bruner 1,117-21 ft., T.D.

Seminole County

Mohican 1 Thlocco ..... NE SW NW 30-7-7
Pumped 40 bbl., Senora sand 2,285-2,300 ft., T.D.
Winona 2 Jackson ..... NE SE NE 18-7-8
Pumped 163 bbl. after shooting, Wilcox 4,241-54 ft., T.D.

MURRAY

HAS NOTHING TO SELL BUT

SERVICE

. . . expert service on the design and manufacture of mechanical rubber goods and synthetic oil-resisting products.

If you have a problem in rubber to be solved, bring it to us . . . our field is the oil field equipment manufacturer.

MURRAY RUBBER COMPANY

606-8 N. Milby — Preston 7017

HOUSTON, TEXAS

ALWAYS RENEW YOUR SUBSCRIPTION PROMPTLY

"SEEP" and "STAR"

TRADE MARK REGISTERED

THE GREATEST NAMES IN VALVE AND PUMP CUPS

BE SURE YOUR CUPS ARE MADE OF LEATHER

YOU can get "Seep" and "Star" Cups right when you want them. No delay. Your supply store has them and we always maintain a large stock at our plant.

C. L. & W. W. AUER

ESTABLISHED 1880 — CORRY, PA.

Reese 2 Berryman ..... SW NW SW 36-11-8
Flowed 565 bbl. of oil per day. Cromwell 3,475 ft., set 7-in. casing 3,477 ft., T.D. 3,513 ft.
McKown 2 Miller ..... NW NE SW 27-5-6
Pumped 18 bbl., sand 1,544-55 ft., T.D.
Mohican 1 Fleet ..... SW SW 19-7-7
Dry, Senora lime 2,171 ft., T.D. 2,216 ft.

Stephens County

Hawks 1 Simpson ..... SE NW NE 11-1-5w
Pumped 11 bbl., sand 1,040-53 ft., T.D.

Texas County

Peerless O. & G. Co. 1 Elmore C NW SE 28-5n-18ecm.
Gaged 12,000,000 cu. ft. of gas, at 2,730 ft., T.D.

Tulsa County

S. W. Anthony 9 fee ..... NE SW NW 3-16-12
T.D. 2,336 ft., dry.
Rutland Oil Co. 5 Samuels ..... S½ NW NE NE 35-17-12
Gaged 750,000 cu. ft. gas at 1,341 ft., T.D.
Krausne & Kirk 1 Kirk ..... NW NW SE 24-18-14
Pumped 1 bbl. oil., T.D. 1,352 ft.

Wagoner County

C. K. Minter 1-A Woodward ..NE SW SW SE 30-18-18
T.D. 650 ft., dry.

FIRST REPORTS

Carter County

Batson 3 Walker ..... SW NW NE 20-4s-2w
Gibson 2 Griffin ..... SE SE 20-4s-2w
Gibson 6 Walker ..... NW SE NE 20-4s-2w

Hughes County

Wildcat: Hinton 1 Brittain ..... NE SE SE 6-6-10

Jefferson County

Wildcat: Bridwell 2 O.W.C. ..... NW NE SW 29-6s-5w

Okfuskee County

Burke Greis 1 Scott ..... C NW SE 20-10-10
Wells 2 Fletcher ..... SW SE SE 24-10-11

Pottawatomie County

Mid States 1 Wilson ..... NW NE NW 4-11-6
Smith 1 Maud ..... SE NW SE 27-8-5

Pontotoc County

Moore 1 Julius ..... NW SE NW 6-4-7

Seminole County

Scruggins 1 Gordon ..... SW NE NE 34-5-7
Davis 2 Jones ..... SW NE SW 34-6-5

Stephens County

Pace 21 fee ..... SW NW NW 21-2s-7w

Tillman County

I.T.I.O. 1 Ash ..... NW SW 6-3s-18w

California Fields

(Continued from Page 87)

the well flowed to sump for 2 hours and then died. The crew is now engaged in making another series of tests. This well blew out when the bit was down 8,936 ft. and it took 2,500 bbl. of heavy mud fortified with weight material to bring it under control. The fishing job that developed at this time was subsequently rectified but the well has never since showed much kick indicating a possibility that the interval containing the gas must have been very effectively mudded off. No. 6 Lloyd, bottomed at 7,490 ft. with 9⅝-in. casing cemented at 6,870 ft., is redrilling at 7,360 ft. and making good progress. The Ventura Avenue field is without doubt the most difficult field in the state to drill and both of these wells have shown excessive drilling costs.

COASTAL DISTRICT COMPLETIONS

Ventura Avenue Field

Shell 110 Taylor 28-3n-23w
Flowed 2,610 bbl., 31.5-gravity, 1,985,000 cu. ft. gas, T.D. 8,290 ft., 7⅝-in. water string cemented 7,543 ft., 762 ft. of 5½-in. liner landed 8,287 ft. Located on east side of Taylor lease which is situated on west side of field. Ventura County.

COASTAL DISTRICT WILDCATS

Coal Oil Point District

Bolsa Chica 191-7 Permit 25-4n-29w
T.D. 568 ft. Ran into old pipe. Will plug back and begin again. Santa Barbara County.

Huasna District

Harvey Oil Corp. 1 Huasna 11-32s-14e
Drilling 1,784 ft. in sand and shale. Had showing of heavy oil on ditch at 875 ft. Took a core but had no recovery. Resumed drilling. San Luis Obispo County.

Santa Maria District

Union 2-1 Bradley 36-10n-34w
Drilling 3,880 ft. in sandy shale, 708 ft. of 12¾-in. surface pipe cemented. Santa Barbara County.

South Mountain District

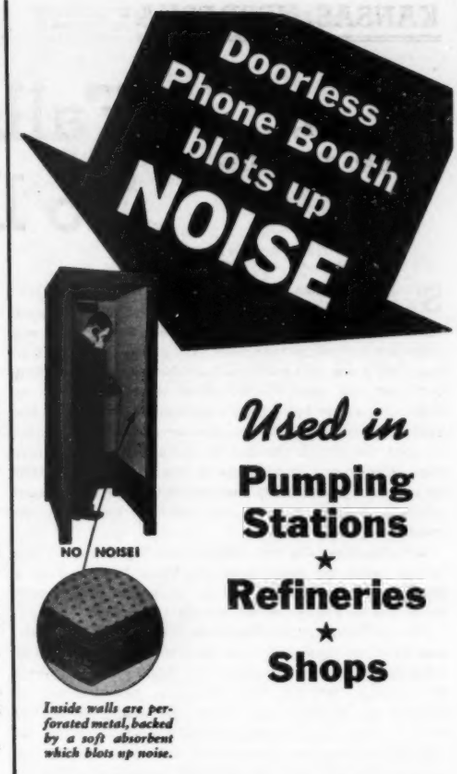
Cal Sec. 1 S.M. 17-3n-20w
T.D. 4,501 ft., P.B. 4,260 ft., oil sand cored at 4,490-4,500 ft. carried little saturation, 8⅝-in. water string cemented 2,260 ft., 1,985 ft. of 6⅝-in. liner landed 4,242 ft., all perforated, 4,200 ft. of 2½-in. tubing with packer 2,250 ft., swabbed in and flowed 600 bbl. in 15 hr. Believed all circulating oil. Well now dead and being swabbed. Shows very little kick. Ventura County.

Shiells Canyon District

O. C. Field 3-B Calumet 3-3n-19w
Drilling 990 ft. in sand and shale, 13⅜-in. surface pipe cemented 241 ft. Production expected around 3,500 ft. in Sespe if successful. Ventura County.

Tar Springs District

Superior 1 Tar Springs 24-32s-14e
Drilling 5,872 ft. in hard shale. San Luis Obispo County.



Inside walls are perforated metal, backed by a soft absorbent which blots up noise.

Used in

Pumping Stations

★

Refineries

★

Shops

How to Improve Your Phone Service

If the noise of engines, pumps, and other machinery interferes with your telephone service, there is an easy way to stop such interference. Merely install your telephones in Burgess Acousti-Booths.

The Burgess Acousti-Booth is no ordinary telephone booth. It has no doors, but it is lined with an acoustic lining that blots up noise as quickly as a blotter soaks up ink. Therefore, within the booth is a "zone of quiet" that surprises everyone who first steps into a Burgess Booth. In fact, the interior of the booth is so hushed that you can hear any telephone conversation clearly, no matter what noise is going on around you.

These booths are made of steel. They are easy to install . . easy to clean . . and easy to use. The absence of doors assures ample circulation of air at all times.

It will pay you to install Burgess Acousti-Booths in every telephone location which is noisy. Errors and misunderstandings are prevented, time is saved, and service is greatly improved. Write today for facts.

Mail Coupon for Free Booklet

Burgess Battery Company, Acoustic Division
Dept. O, 300 W. Huron St., Chicago

Please send Free booklet describing Burgess Doorless Acousti-Booth and how it makes telephoning easy in noisy places.

Name.....

Company.....

Address.....

BURGESS ACOUSTI-BOOTH

Manufactured under Burgess Patents

BURGESS

By
DAL DALRYMPLE

Falls City Producers Increased To 13 With New Wells in Pay

ST. JOSEPH, Mo., Oct. 14.—Thirteen wells are flowing, pumping or swabbing oil in the Falls City pool, Richardson County, Nebraska. Pawnee Royalty Co. was expected to drill in two more this week. Elsewhere in the county are two additional producers, one near Shubert and one near Salem. More than 60,000 bbl. of Falls City crude have been sold since discovery of the pool in November 1939. September carloadings totaled 57, and already in October 65 carloads of crude have been shipped out, in addition to truck shipments. Daily output, now about 1,800 bbl., will be greatly increased when gathering systems and proposed refineries are completed.

Bell Pipe Line Co. and Independent Pipe Line Co. are laying gathering lines from the Falls City pool to a Burlington railroad siding just southwest of the city. Both will be ready for use within a few days.

Pawnee Royalty Co. 1 Sandrock, NW SE NW 20-1n-16e, flowed at the rate of 600 bbl. daily from Hunton lime at 2,214-2,260 ft. after acidizing with 2,000 gal. Company's 2 Sandrock, NE SE NW 20-1n-16e, had Hunton at 2,209-63 ft., acidized with 2,000 gal. and swabbed 30 bbl. an hour. The 3 Sandrock, NW SE NE 20-1n-16e, set pipe on Hunton and 4 Sandrock, CSL N½ S½ NE 20-1n-16e, also set pipe on Hunton, topped at 2,261 ft. Operators were rigging up at No. 5 Sandrock, S½ N½ 20-1n-16e.

Harper Oil Co. pumped 720 bbl. of oil daily from 2 Sibbernsen, SE NW NW 20-1n-16e, after acidizing with 1,000 and 3,000 gal. Pay was found in 6 ft. of Misener sand topped at 2,216 ft. and in Hunton lime, bottomed at 2,245 ft.

Skelly Oil Co. 2 Davisson, NE NW NE 20-1n-16e, found Hunton lime at 2,256-82 ft., acidized with 1,500 gal. and oil was slopping over top of casing, with 8 per cent water. The company's 1 Wallraff, C Section 20, pumped 485 bbl. in 16 hours through 3-in. tubing. The 2 Wallraff, C SW SE 20-1n-16e, was nearing Hunton lime and the company's 1 Prichard, C SE NE 29-1n-16e, spudded.

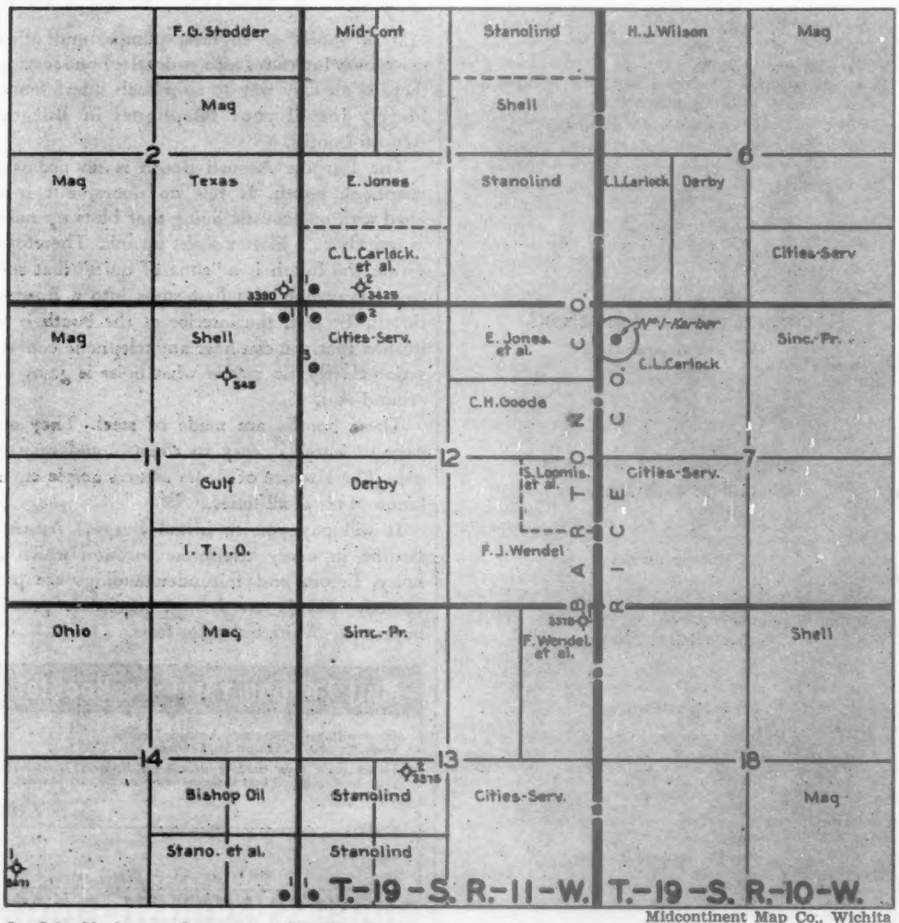
NEBRASKA WILDCATS

Nemaha County

Frank Engles et al 1 Wheeler . . NE NE NE 9-4n-14e
Set 8-in. 1,657 ft., drilling below 1,825 ft.
Black Gold 1 Allen . . . . C SE SW 16-4n-15e
Coring Hunton at 2,683 ft.
Richards, Clampitt & Ogden 1 Lambert . . NE NE SW 26-4n-15e
Drilling below 2,242 ft.
E. W. Schrock et al 1 Rogge . . NW NW NW 17-5n-13e
Hunton 2,300 ft., T.D. 2,472 ft., 1,200 ft. water in hole, plug set at 2,435 ft., casing perf. at 2,306-16 ft., acidized 250 gal., small showing of oil, to standardize and drill ahead.
Bow & Arrow Oil 1 Schriefer . . N½ NE SW 20-5n-14e
Drilling below 1,582 ft.
Nemaha Dev. Co. 1 Evans . . . . . C NW NE 32-6n-15e
Building rotary rig.
Bow & Arrow Oil 1 Wrightsman . . C W½ SW NW 36-6n-14e
Drilling below 752 ft.

Richardson County

Uhri Oil Corp. 1 Stauffer . . SW SW NE 22-1n-13e
Set 10-in. 1,400 ft., cleaning out.



Midcontinent Map Co., Wichita

An Arbuckle lime pool was opened in Rice County, near the Barton County line, at C. L. Carlock 1 Karber, 7-19-10w. Location is 1 mile east of the Rick pool in Barton County. North end of the Eberhardt pool is shown in Sections 13 and 14-19-11w

Eckart et al 1 Ast . . . . . NE NE SW 6-1n-14e
Cement 10-in. 60 ft., S.D.
Uhri Oil Corp. 1-A Ogle . . . . . NW SE SE 9-1n-14e
Hunton or Misener about 2,255 ft., T.D. 2,260 ft., showing oil and water.
Forest City Basin Synd. 1 Windle-Dodge . . . . . SE NE SE 3-1n-15e
Drilling below 2,230 ft.
Robert McIntyre 1 Hill-Hough . . . . C SE SW 6-1n-16e
Drilling below 500 ft.
I. T. I. O. 1 Bankers Life . . . . . C NE SE 3-2n-15e
Drilling below 1,200 ft.
Jackson & Rust et al 1 Eickhoff . . . C NE NW 4-2n-16e
Hunton 2,508 ft., showing oil, cemented 7-in. 2,505 ft., rigging up standard tools 2,524 ft., to acidize.
W. H. Martgan et al 1 Smith . . . . C NW NW 31-3n-16e
Location.

Activity in Missouri

In Missouri, American Oil & Gas Corp. 1 Thompson, SW SW 20-58n-31w, De Kalb County, was planning to underream 8-in. pipe from 1,584 ft. to about 1,660 ft. Total depth is 1,791 ft. Hunton lime was logged at 1,575 ft., but subsequent showings of shale caused a rechecking that may prove the logging incorrect. A. & W. Oil Co. of Chicago was building derrick at 1 Pickett, NW SE 13-57n-32w, De Kalb County.

In Holt County, J. A. Kilby & Jerome Flory spudded 1 Meyer, SE SE NE NW 7-62n-39w, corrected location.

In Caldwell County, O. M. Evans 1 Petty, NE NE 35-55n-29w, was dry and abandoned at 630 ft. Same operator's 1 Van Linder, S½ NE SE 26-55n-29w, was drilling below 175 ft., seeking the shallow gas pay.

On the Kansas side of the Forest City basin, Ladd & Vincent 1 Achten, CSL SE NW 14-4s-14e, Nemaha County, was shut down at about 1,725 ft. for 8-in. casing. Dan McLaughlin 1 Ragan, C NW NW 3-10s-20e, Leavenworth County, drilled to 1,319 ft. and was underreaming pipe at 1,259 ft.

In Johnson County, Kansas, Christopher & Hamel 3 Ballard, SW SE SE 3-12-24, was dry and abandoned at 592½ ft.

OPERATIONS IN KANSAS

An oil pool was opened in Rice County, the Kraft pool in Barton County was extended, a Barber County wildcat was showing oil, a Keesling extension well in Rice County and the North Greenvale discovery well in Russell County were completed to feature field activity in Kansas.

C. L. Carlock 1 Karber, C W½ NW NW 7-19-10w, Rice County discovery well, found Arbuckle lime at 3,340-54 ft., and oil rose 2,750 ft. in the hole. Operators were preparing to acidize. It is in western Rice County and 1 mile east of the Rick pool in Barton County.

Texas Co. 1 Burmeister, CWL SW SW 2-17-11w, extended the Kraft pool ¼ mile northward. It was completed for potential of 3,000 bbl. of oil at 3,303-08 ft. in Arbuckle lime.

Derby Oil Co. et al 1 Hancock, C SE SE 10-32-12w, wildcat about 3 miles southwest of the Medicine Lodge pool, Barber County, had a showing of oil in Viola lime and operators were preparing to test. Viola lime was topped at 4,582 ft., and casing perforated at 4,578-89 ft. Hole was bottomed at 4,840 ft. in Arbuckle zone.

WILDCAT COMPLETIONS

Kearny County

Stanolind 1 Judd . . . . . C SE SE 15-21-38w
Lansing 4,060 ft., Mississippi 4,811 ft., Viola 5,425 ft., Arbuckle 5,555 ft., weathered granite 6,065 ft., granite 6,070-71 ft., T.D., dry. After stopping in granite, this wildcat was P.B. to 5,384 ft., shot at 4,700½-93 ft., had a rainbow show of oil and 1½ bbl. of water an hour; shot at 4,020-23½ ft., slight showing of oil and water; perf. casing and tested other upper zones with similar results; acidized with 1,000 gal. at 3,859 ft., swabbed 30 bbl. of water and ½ bbl. oil an hour; the oil was black and of 21.6 gravity.

Rice County

Alpine Oil & Royalty 1 Fair . . CSL SE NW 10-21-9w
Viola 3,330 ft., Simpson shale 3,376 ft., Simpson sand 3,380 ft., T.D. 3,388 ft., dry.

Russell County

Jones & Shelburne 1 Lewis . . SW SW NE 28-14-12w
Opened the North Greenvale pool. Anhydrite 591 ft., Tarkio 2,319 ft., pay 2,321-25 ft., T.D. 2,329 ft.,

pumped 488 bbl. of oil in 8 hrs.. potential 1,463 bbl., gravity of the oil 36.6°, corrected.

Estimated Daily Production

Estimated daily production for Kansas for the week ended October 12, and for the preceding week, was as follows:

	Barrels	
	Oct. 12	Oct. 5
Oxford City	700	700
Burrton	8,450	7,100
Ritz-Canton	4,200	3,800
Graber	2,650	3,250
Hollow-Nikkel	1,550	1,350
Lerado	1,250	900
Voshell	1,850	1,700
Wellington	1,650	1,550
Ellsworth County:		
Lorraine	1,400	1,550
Other pools	4,775	4,625
Rice-Barton counties:		
Bloomer	5,450	4,750
Chase	5,400	4,450
Geneseo	4,250	2,950
Raymond	700	1,000
Silica	15,400	14,550
Keesling	500	1,100
Wherry	3,750	3,100
Miscellaneous Barton	5,260	5,960
Trapp district	16,200	17,800
Balance Russell County	20,450	22,450
Sedgwick County	3,150	3,150
Ellis County:		
Bemis	10,600	5,150
Burnett	5,350	4,000
Miscellaneous	2,100	2,345
Kingman County	860	860
Stafford County	12,170	12,170
Greenwood County	8,750	8,350
El Dorado	7,300	7,100
Other fields	35,035	43,390
Total Kansas	197,100	191,150

COMPLETIONS IN FIELDS

Barton County

Beaver pool: Martin & Hearing 2-A Kultgen, CEL NE NE 17-16-12. T.D. 3,346 ft. in Gorham sand, potential 600 bbl.

Silica field: Gulf 3 Howard, CWL SW 8-20-11w. T.D. 3,318 ft. in Arbuckle lime, pumped 89 bbl. oil daily, initial temporary potential.

I. T. I. O. 2-B Rose Bryant, CNL NE NW 26-20-11w. T.D. 3,304 ft. in Arbuckle lime, acidized, pumped 14 bbl. oil daily.

Trapp field: Shell Oil 3 E. F. Peterman, SE cor. 24-16-14w. T.D. 3,379 ft., acidized. pumped 47 bbl. oil daily.

Barber County

Whelan pool: Lario O. & G. 1 Whelan, NE NE SW 29-31-11w, on east side of pool. Chat 3,309 ft., T.D. 4,358 ft., dry.

Butler County

Brandt pool: Adair & Morton 14 Brandt, C S½ NE 15-28-7. T.D. 2,742 ft. in Mississippi lime, initial potential 714 bbl. of oil daily.

Ellis County

Bemis field: Cities Service 19 Colahan, SE SW SW 24-11-17w. T.D. 3,491 ft. in Arbuckle lime, daily potential 3,000 bbl. oil calculated.

Burnett pool: Phillips Petroleum 8 Peavey, CSL SE SE 13-11-18w. T.D. 3,417 ft. in Arbuckle lime, acidized, daily potential 2,647 bbl. oil, calculated.

Skelly 8 Kempe, C S½ NE NW 12-11-18w. T.D. 3,441 ft. in Arbuckle lime, potential 3,000 bbl. oil daily, calculated.

Ellsworth County

Stoltenberg field: Beardmore Drilling et al 4 Talsky, C W½ NE NE 8-16-10w. T.D. 3,272 ft. in Arbuckle lime, daily potential 3,000 bbl., calculated.

Greenwood County

Severy pool: J. W. McClure 1 Vennis, NW NE SW SW 8-28-11. T.D. 2,354 ft., dry.

Brazil & Patterson et al 1-A Tollman, SW SW SW 15-28-11. T.D. 1,157 ft., pumped 25 bbl.

C. Barker et al 2 Butcher, SE NE SW NE 17-28-11. T.D. 1,225 ft., pumped 25 bbl.

Duncan Oil et al 1 Town Lot, NW SE NE NW 17-28-11. T.D. 1,250 ft., dry.

Lemon & Shewmaker 1 Roberts, NE SE SE NW 17-28-11. T.D. 1,225 ft., pumped 25 bbl.

North Virgil pool: O. F. Duncan 4 Souder, SE SW SE NW 20-23-13. T.D. 1,815 ft., dry.

Reece pool: Katz & Veeder 5 Life estate, NE SE NW 13-26-9. T.D. 2,147 ft., pumped 20 bbl.

Virgil pool: A. M. Landon 3-B Johnson, NE SE NW NW 22-24-12. T.D. 1,726 ft., pumped 8 bbl.

McPherson County

Bornholdt field: Central Petroleum 4-A Swanson, C E½ NE NW 18-20-5w. T.D. 3,371 ft. in chat, potential 3,000 bbl., calculated.

Roxbury pool: Westgate-Greenland 2 Union, CWL SE NE 18-17-1w. T.D. 2,694 ft. in chat, potential 575 bbl. daily.

Stelbar Oil Corp. 3 Jones, CWL NW NE 19-17-1w. T.D. 2,689 ft. in chat, potential 1,905 bbl.

Reno County

Burrton field: Olson Oil 3 Duckworth, CNL NW NE 23-23-4w. T.D. 3,304 ft. in chat, pumped 90 bbl.

Ohio Oil 2 Vansickle, SW SE NW 23-23-4w. T.D. 3,573 ft. in chat, pumped 260 bbl.

Amerada 3 Wilson, SE NW SW 23-23-4w. T.D. 3,407 ft. in chat, pumped 331 bbl.

Rice County

Geneseo field: Continental 8-A Pickerill, NW SW NE 24-18-8w. T.D. 3,173 ft. in Arbuckle lime, potential 2,726 bbl., calculated.

Keesling pool: Colorado Petroleum 1 Keesling, C E½ NE NW 10-20-9w, extended pool ½ mile northward. T.D. 3,233 ft. in chat, pumped 390 bbl.

Rooks County

Burnett pool: Bay Oil Corp. 2 Kempe, CEL SE NE 31-10-17w. T.D. 3,627 ft. in Arbuckle lime, potential 3,000 bbl., calculated.

Russell County

Big Creek pool: Mutual Oil 1 Solbach, CWL NW NW 32-14-14w. T.D. 3,050 ft. in Lansing lime, acidized, potential 2,777 bbl., pumping.

Greenvale pool: Shell Oil 2 Major, SW NW NE 4-15-12w. T.D. 3,336 ft. in Arbuckle, potential 218 bbl., pumping.

Hall-Gurney field: Skelly 14 Opdycke, 32-14-13w. T.D. 2,943 ft. in Lansing lime, acidized, potential 1,624 bbl.

R. H. Shields 9 John Letsch, 27-14-13w. T.D. 2,925 ft. in Lansing lime, acidized, potential 3,000 bbl., calculated.

Trapp field: Cities Service 6-D Krug, 24-15-14w. T.D. 3,329 ft. in Arbuckle lime, acidized, potential 2,510 bbl., calculated.

Shell 1-A Michaelis B, C W½ W½ SE 33-15-13w. T.D. 3,354 ft. in Arbuckle lime, potential 965 bbl.

Stafford County

Zenith field: Stanolind 1 McComb, CNL SW SW 12-24-11w. T.D 3,803 ft. in Viola lime, acidized, potential 3,000 bbl., calculated.

Shell 2 Brown, SW NE SW 2-24-11w. T.D. 3,761 ft. in Misener sand, potential 3,000 bbl., calculated.

Woodson County

Hoagland pool: Oko O. & G. 6 Hoagland, NW SE SE 35-23-14. T.D. 1,622 ft., pumped 15 bbl. daily.

WILDCAT REPORTS

Barber County

Derby et al 1 John Hancock SE SE 10-32-12w
Cemented 4½-in. 4,799 ft., waiting on unit.

Barbara Oil 1 Angell NE SE 10-33-14w
Drilling 4,840 ft.

Greenwood County

McKnab et al 1-A Hess NE NE NW 5-22-11
Drilling 1,250 ft.

Ward McGinnis 1 Sharp SW SW 9-28-12
Kansas City 820 ft., drilling 868 ft., with show of gas.

Marion County

H-L-N Oil 1 Shields C S½ SE SE 19-17-4
Drilling 1,770 ft.

McPherson County

Williams et al 1 Henne SW SW NE 21-17-1w
Drilling 1,825 ft.

Nemaha County

A. C. Bumpus 1 Achten CSL SE NW 12-4-14
S.D. 1,700 ft., will run 8-in. casing to bottom.

Pratt County

Marylyn Oil 1 Jackson CEL NE NW 1-27-13w
Topeka 3,198 ft., Lansing 3,721 ft., Arbuckle 4,315 ft., perf. 4,227-31 ft., 700 ft. water in hole.

Russell County

Robertson et al 1 Radke C S½ SE SW 18-15-14w
6-in. casing 3,015 ft., drilling 3,030 ft.

Stafford County

Shelby O. & G. 1 Blackburn CEL SE NE 13-24-12w
T.D. 3,885 ft., P.B. to 3,872 ft., perf., 3,000 ft. fluid in hole, waiting orders.

IT ISN'T TRUE !!

that HILL-HUBBELL can't get the orders out

Buy STEEL PIPE Mill Coated - and - Wrapped at any of these Mills

Jones & Laughlin Steel Corp.
National Tube Company
Republic Steel Corporation
Spang Chalfant, Inc.
The Youngstown Sheet & Tube Company

A request on your letterhead will bring a copy of "Pipe Protection" which describes our process in detail.

While it is true we are busy, IT IS NOT true that we can't make deliveries. Our volume is greater than it has ever been, but we can take more business. In the HILL-HUBBELL "factory process" of Coating - and - Wrapping STEEL PIPE there are no delays caused by bad weather, darkness, insufficient or incompetent men. If necessary, we can work continuously, day and night. But regardless of volume, we will never compromise good workmanship.

WE DO IT MECHANICALLY

The HILL-HUBBELL "factory process" not only eliminates production delays, but it gives you MAXIMUM PROTECTION at no greater cost.

Schematic Construction of Specification TAX-1

GENERAL PAINT CORPORATION
HILL, HUBBELL & CO. • Division • Cleveland, Ohio
• EXPORT OFFICE SAN FRANCISCO, CALIFORNIA, U. S. A. •

Trenton Tests and Gallatin Discovery Share Spotlight

By STAFF CORRESPONDENT

MATTOON, Ill., Oct. 14.—Interest in Illinois was about evenly divided last week between the Trenton tests in Marion and Clinton counties and the developments in the active southeastern section of the basin.

Centralia's second Trenton test, Borton 1 Storer, NW NE NE 13-1n-1w, appears to be a producer as over 50 ft. of saturation has been penetrated. The top of the Trenton was at 4,012 ft. and pay was topped at 4,032 ft. The well is still drilling at 4,080 ft. and may be deepened another hundred feet or so before completion. Shell 6-C Ververs, the Fairman pool Trenton test in E½ SE NW 18-3n-1w, showed dry in drill-stem tests between 3,921 and 4,100 ft. and will probably be abandoned. In Sandoval, B. E. Martin 1 Robinson, SW SE SW 9-2n-1e, got the Trenton at 4,268 ft., and has from 23 to 27 ft. of saturation. Pipe was set at 4,270 ft. and the well is waiting on cement prior to going ahead deeper into the pay.

Gallatin County Discovery

Carter Oil Co.'s Gallatin County wildcat, 1 R. M. York, SE SE SW 33-7s-8e, which blew in from the Palestine sand Friday, was being cored deeper today, at about 1,720 ft.

The cuttings showed first saturation in the Palestine at 1,699 ft. and a core was taken from 1,700-12½ ft. Casing was set on the shoulder at 1,700 ft. and the hole was bailed out. When it had been bailed down 700 ft., the hole started filling, and oil flowed over the derrick floor. The flow was killed to enable drillers to core on into the formation.

The Palestine saturation is the second pay section the well has encountered. In a formation tentatively identified as the Biehl sand topped at 1,331 ft., a total of about 27 ft. of saturation was found. Production tests were made of various parts of the pay and at one time the well made 14 bbl. in 2 hours.

A company representative said a producer was assured at the well's present depth, but that the test would be deepened to explore lower strata.

There are only two small producing areas in the county at present.

Wabash and White County Tests

In the southeast part of the Illinois basin a wildcat was showing for a producer in Wabash County.

Five miles northwest of Mount Carmel Hayes and associates 1 Zimmerman, NW NW SE 36-1n-13w, was cleaning out in Benoist sand following a second shot. Saturation was topped at 2,357 ft. and the well was drilled on to the McClosky which was dry. After a plugback to the Benoist, the first shot of 10 qt. damaged casing, according to reports.

In White County Sun Oil Co. is ready to drill plug at a well which may give the New Harmony field a new producing horizon, the Aux Vases. Casing was cemented the first of the week at the company's 18 E. B. Greathouse, NE NE SE 33-4s-14w. Other production in the field is from the Cypress and the McClosky. Across the river in Indiana the pool produces from the Waltersburg, Tar Springs and Pennsylvania.

Activity remained at somewhat lower than usual levels as 63 wells were completed during the past week. Of these 15 were dry. Louden had 11 new producers with a total initial production of 1,391 bbl., Salem had 9 with 1,469 bbl. initial and the remainder of the basin had 28 oil wells with 4,710 bbl. production.

ILLINOIS COMPLETIONS REPORT

Bond County

Magnolia 4 J. Elam.....SE SW SW 3-6n-2w
Pumped 22 bbl. oil and 4 bbl. water, 10-qt. shot, Benoist 1,020-23 ft.

Clark County

Ohio 1 A. Davidson.....N½NE SE 3-10n-11w
Dry, Osage 265 ft., Carper sand 2,170 ft., Chattanooga 2,238 ft., Devonian 2,327 ft., T.D. 2,479 ft.

Clinton County

Reeves & Morgan 1 Knolhoff....N½ S½ N½ 11-1n-2w
Pumped 52 bbl. oil, Benoist 1,317-24 ft.
E. J. Goldsmith 1 Holtgrave.....SE SE NE 33-2n-3w
Dry, T.D. 1,100 ft.

Douglas County

Taylor Drlg. 1 Baldwin.....SW SE SE 33-16n-9e
Dry, Osage 265 ft., Kinderhook 460 ft., Devonian 570 ft., T.D. 630 ft.

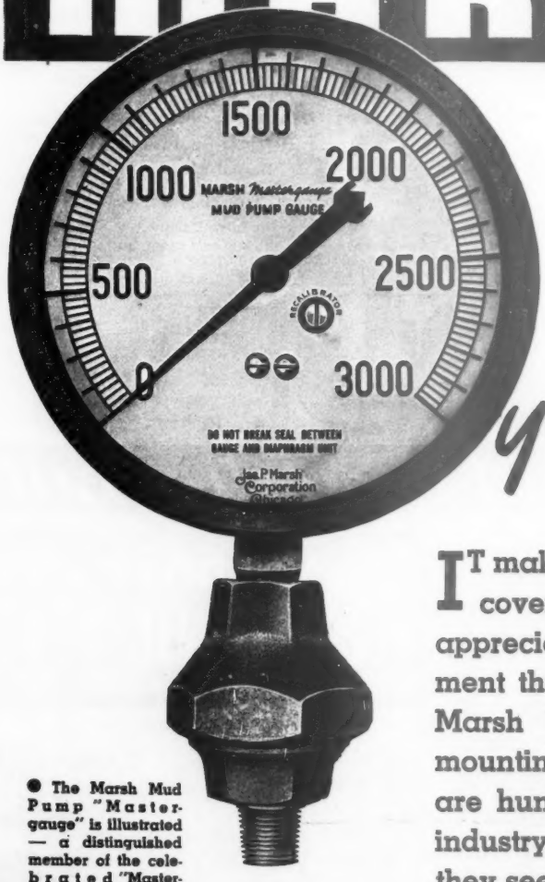
Edwards County

Noah & Morrison 3 Barnes.....NW NE NE 24-2s-10e
Pumped 95 bbl. oil, 5-qt. shot, Waltersburg 2,376-86 ft.

Fayette County—Louden Field

Carter 1 A. W. St. Pierre.....NW NE NW 1-8n-3e
Pumped 140 bbl. oil, 20-qt. shot, Cypress 1,527-58 ft.
Carter 3 Goldie Hedges.....NW SW NW 21-8n-3e
Pumped 252 bbl. oil, 60-qt. shot 1,538-69 ft., Paint Creek stray 1,532-77 ft., Bethel 1,588-94 ft.
Carter 3 C. C. Bennett.....SW SW NW 29-8n-3e
Pumped 180 bbl. oil, 10 and 20-qt. shots, Cypress 1,445-83 ft.
Carter 4 J. H. Smith.....NE SW SE 31-8n-3e
Pumped 186 bbl. oil, 20 and 5-qt. shots, Cypress 1,453-1,506 ft., Bethel 1,573-88 ft.
Irl Rhynes, receiver, 3 Koberlein-B NE SE NW 4-7n-3e
Pumped 60 bbl. oil, 30 and 10-qt. shots, Cypress sand 1,471 ft., Paint Creek stray 1,564 ft., T.D. 1,578 ft.
Irl Rhynes, receiver, 4 Koberlein-B SE SE NW 4-7n-3e
Pumped 75 bbl. oil, 7 and 30-qt. shots, Cypress sand 1,483 ft., Paint Creek stray 1,556 ft., T.D. 1,574 ft.
Carter 3 Ola Martin.....NE NE NW 9-7n-3e
Pumped 132 bbl. oil, 30-qt. shot, Cypress 1,500-56 ft., T.D. 1,581 ft., P.B. to 1,554 ft.
Carter 1 G. Ashburn.....SW SW NE 4-7n-3e
Dry, Cypress sand 1,494-1,536 ft., Paint Creek 1,577-98 ft., T.D. 1,626 ft.
Green & Washburn 1 McDonald..NW NE NW 23-7n-1e
Dry, T.D. 1,425 ft.
Texas 12 O. Neathery.....NE NW NE 6-6n-3e
Pumped 20 bbl. oil, Cypress 1,588-1,600 ft.
Texas 13 O. Neathery.....SE SW NE 6-6n-3e
Pumped 312 bbl. oil, 9-qt. shot 1,556-74 ft.
Texas 11 A. Yakel.....SW NW SE 6-6n-3e

MARSH



It's your turn now!

IT makes life worthwhile to discover that operating men do appreciate the care and refinement that we have put into the Marsh Mastergauge. Rapidly mounting sales prove that there are hundreds of men in the oil industry who know quality when they see it. It's your turn now to join the crowd!

● The Marsh Mud Pump "Mastergauge" is illustrated — a distinguished member of the celebrated "Mastergauge" family. The broad Marsh line includes gauges for every service. Your supply house, backed by our large emergency stock at Houston, can fill orders promptly.

GAUGES

JAS. P. MARSH CORPORATION, 2065 SOUTHPORT AVE., CHICAGO, ILL.

Pumped 20 bbl. oil in 18 hr., Cypress sand 1,548-80 ft.
Texas 3 L. W. Grey ..... SW NW NW 7-6n-3e
Pumped 14 bbl. oil, Cypress 1,574-84 ft.

Fayette County—St. James Field

Texas 4 N. Swann ..... NE NE NW 30-6n-3e
Dry, Cypress 1,602 ft., no sand, T.D. 1,646 ft.
Texas 16 C. Wright ..... NW NE SW 31-6n-3e
Pumped 180 bbl. oil, 10-qt. shot, Cypress sand 1,589 ft., T.D. 1,612 ft.
Zephyr 5 Stevens ..... SW SW NE 31-6n-3e
Pumped 126 bbl. oil, 5-qt. shot, Cypress 1,613-22 ft.

Hamilton County

Exchange 4 M. Friel-A ..... NE NE SE 34-5s-6e
Pumped 95 bbl. oil, 25-qt. shot, Benoist 2,936-58 ft.
Exchange 3 M. Friel-B ..... NW NW SE 34-5s-6e
Pumped 160 bbl. oil, 10-qt. shot, Benoist 2,962-75 ft.
Howell et al 1 Campbell ..... SW NE NE 34-5s-6e
Pumped 168 bbl. oil and 25 bbl. water, 10-qt. shot, Benoist 2,964-75 ft.
Exchange 1 Webb ..... NE SW SE 13-5s-6e
Dry, McClosky 3,368 ft., T.D. 3,505 ft., old well drilled deeper.

Jasper County

Pure 1 C. O. May ..... E½ SE NE 17-6n-10e
Pumped 386 bbl. oil, 5,000 gal. acid, McClosky 2,783-2,800 ft., T.D. 2,825 ft.
Pure 1 W. G. Mervin-A ..... NE NE SE 17-6n-10e
Dry, Glen Dean 2,282 ft., Cypress 2,430 ft., Ste. Genevieve 2,752 ft., T.D. 2,921 ft.

Marion County

P. Doran 1 Meador ..... SE SE NW 17-4n-1e
Dry, Glen Dean 1,185 ft., Ste. Genevieve 1,650 ft., T.D. 1,785 ft.

Marion County—Salem Field

Texas 19 E. Farthing-C ..... E½ SE NW 4-1n-2e
Pumped 105 bbl. oil, 3,000 gal. acid, McClosky 2,032-40 ft., 2,069-75 ft., T.D. 2,100 ft.
Texas 34 L. Hawthorne ..... SW NE SE 35-1n-2e
Pumped 204 bbl. oil, 5,000 gal. acid, McClosky 1,963-2,102 ft., Salem 2,214 ft., T.D. 2,240 ft.
Texas 40 L. Hawthorne ..... NE NW SE 5-1n-2e
Pumped 189 bbl. oil, 4,000 gal. acid, McClosky 1,966-72 ft., 1,984-95 ft., Salem 2,195-2,215 ft.
Texas 30 J. Canull ..... SE SE NE 6-1n-2e
Gas input, T.D. 1,831 ft., perf. in Benoist 1,713-37 ft.
Texas 21 C. Friedrich ..... E½ NE SW 6-1n-2e
Pumped 105 bbl. oil, 3,000 gal. acid, Devonian 3,447 ft. and 3,457-77 ft., T.D. 3,496 ft.
Texas 8 M. E. Wilson ..... SW NE SE 7-1n-2e
Flowed 322 bbl. oil, 8,000 gal. acid, Devonian 3,440 ft. and 3,470-85 ft., T.D. 3,508 ft.
Texas 17 R. Fykes ..... SE NE SW 8-1n-2e
Pumped 154 bbl. oil, 40-qt. shot, Benoist 1,839 ft., Aux Vases 1,888 ft., T.D. 1,900 ft.
Texas 12 W. D. Fykes ..... SE NW SE 8-1n-2e
Pumped 42 bbl. oil, 5-qt. shot, Benoist 1,878-91 ft., Aux Vases 1,905-08 ft.
Texas 9 E. Snyder ..... NE NW SE 8-1n-2e
Pumped 140 bbl. oil, 30-qt. shot, Benoist 1,861-83 ft., Aux Vases 1,895-1,908 ft.
Texas 9 M. E. Williams ..... SW NW SW 8-1n-2e
Flowed 208 bbl. oil, Devonian 3,485-90 ft., T.D. 3,525 ft.

Montgomery County

Seaboard 1 O. Lay ..... NW NW SE 20-8n-5w
Dry, Devonian 1,763 ft., Maquoketa 2,235 ft., Trenton 2,420 ft., T.D. 2,577 ft.

Richland County

Pure 1 Blain Consol. ..... SW SE SW 24-4n-9e
Pumped 40 bbl. oil and 6 bbl. water, 30-qt. shot, Cypress 2,540-53 ft., 2,591-98 ft., T.D. 2,604 ft.
Pure 1 Varner-Wachtel ..... NW SW NW 18-4n-10e
Flowed 423 bbl. oil, ½-in. choke, 5,000 gal. acid, McClosky 2,925-41 ft., T.D. 2,955 ft.
Pure 1 H. E. Holtz ..... W½ NE NW 18-4n-10e
Dry, McClosky 2,962-72 ft., T.D. 2,991 ft.

Wabash County

Snowden & McSweeney 2 Siebert SW SE NW 34-2n-13w
Pumped 100 bbl. oil, 2,000 gal. acid, Fredonia 2,613 ft., T.D. 2,669 ft.
L. M. Reynolds 1 A. Lutz ..... SW NE NW 8-1n-12w
Junked 1,190 ft.

Washington County

Magnolia 9 Gill est. ..... NE NE NW 26-3s-3w
Pumped 33 bbl. oil and 35 bbl. water, 2-qt. shot, Benoist 1,269-75 ft.
H. Hubbard 2 Hunlett ..... NE SE SW 19-3s-4w
Dry, Benoist 1,045 ft., T.D. 1,070 ft.

Wayne County

Pure 1 Behymer Cons. ..... W½ NE SE 32-2n-8e
Pumped 29 bbl. oil and 1 bbl. water, 5,000 gal. acid, McClosky 3,023-25 ft., T.D. 3,105 ft.
Pure 6 W. Hubble-A ..... W½ SW NW 33-2n-8e
Pumped 121 bbl. oil, 5,000 gal. acid, McClosky 3,025-30 ft., T.D. 3,048 ft.
Pure 2 H. Gill ..... NE NW SE 5-1n-8e
Flowed 795 bbl. oil, 5,000 gal. acid, McClosky 3,022-40 ft., 3,065-68 ft., T.D. 3,110 ft.
Pure 9 J. Hubble ..... NW SE NE 5-1n-8e
Flowed 120 bbl. oil, McClosky 3,015-18 ft., 3,048-52 ft., T.D. 3,100 ft.
Pure 2 J. S. Hubble-A ..... W½ NE SE 5-1n-8e
Flowed 320 bbl. oil, 5,000 gal. acid 3,023-29 ft., T.D. 3,110 ft.
O'Meara 1 Lain ..... SW SW SW 4-2s-7e
Pumped 40 bbl. oil, 1,000 and 2,000 gal. acid, McClosky 3,307-13 ft., T.D. 3,319 ft., P.B. to 3,316 ft.
H. H. Weinert 2 Brach ..... W½ SW NE 4-2s-7e
Flowed 355 bbl. oil, 3,000 gal. acid, McClosky 3,260-74 ft., T.D. 3,282 ft.
Wayne Dev. Co. 4 Vaughn ..... NW SE SW 26-2s-8e
Pumped and flowed 200 bbl. oil, 4,000 gal. acid, McClosky 3,354-59 ft., 3,372-82 ft., 3,394-99 ft., T.D. 3,409 ft.
McCoy & Henry 1 Forth ..... SW SW NW 3-2s-6e
Dry, Ste. Genevieve 3,208 ft., T.D. 3,273 ft.

White County

Texas 4 A. J. Poorman ..... NW SE SE 31-3s-8e
Pumped 105 bbl. oil, 1,500 gal. acid, 125-qt. shot 3,243-68 ft., T.D. 3,350 ft.
New Penn Dev. 4 C. R. Whitlow NE NW SW 28-3s-9e
Pumped 50 bbl. oil and 20 bbl. water, 4,000 gal. acid, McClosky 3,406-11 ft., 3,418-23 ft., T.D. 3,430 ft.
Pure 6 Potter ..... SW NW SW 9-4s-14w
Pumped 33 bbl. oil, Cypress 2,691-2,705 ft., T.D. 2,712 ft.
Vanderbark et al 1 T. E. Johnson SE SW NE 23-6s-8e
Pumped 207 bbl. oil and 42 bbl. water, McClosky 3,125-40 ft., 3,151-53 ft., T.D. 3,184 ft., P.B. to 3,155 ft.
Wiser 3 Hulett ..... SE SW SE 23-6s-8e
Pumped and flowed 353 bbl. oil and 132 bbl. of water, shot, acid, McClosky 3,034-48 ft., 3,104-07 ft., T.D. 3,160 ft.
Carter 2 C. S. Austin ..... NW SW NE 22-6s-9e
Pumped 57 bbl. oil, 10-qt. shot, Waltersburg 2,247-49 ft.
Eason 3 J. Powell ..... SE NW NE 22-6s-9e
Pumped 45 bbl. oil, 10-qt. shot, Waltersburg 2,255-65 ft.
Mabee 2 Austin ..... SE SW NE 22-6s-9e
Flowed 40 bbl. oil, 20-qt. shot, Waltersburg 2,236-56 ft.
Carter 1 H. Questell ..... NW NE SW 2-7s-9e
Dry, base Pennsylvanian 1,892 ft., Menard 2,245 ft., Tar Springs 2,390 ft., T.D. 2,403 ft., P.B. to 1,116 ft., sand 1,106-16 ft., tested water.

ILLINOIS DRILLING REPORT

Bond County

G. Brainard 1 Lindley ..... NE NE SW 26-6n-4w
Run 8-in. on McClosky at 1,000 ft.
Kingwood 1 Hentz ..... SW NE NW 18-5n-3w
Base Pennsylvanian 905 ft., Cypress 940 ft., Ste. Genevieve 1,090 ft., St. Louis 1,208 ft., Salem 1,296 ft., Osage 1,580 ft., drilling 1,678 ft.

Bureau County

John Wall 1 F. J. Baird ..... NW NW NW 9-18n-10e
Spudded.

Clark County

Strickler 1 McFarland ..... NW NE SW 19-10n-13w
T.D. 2,833 ft., P.B. to 1,410 ft., testing Carper sand 1,302-64 ft., show oil in streaks, cleaning out to shoot.

Clinton County

C. Bell et al 1 H. B. Brefeld ..... NE NE NE 30-2n-3w
Cypress 946 ft., Benoist 1,080 ft., S.D. 1,123 ft.
J. Wellinghoff 1 Huelsmann ..... NE NE SE 17-1n-3w
Golconda 824 ft., Cypress 987 ft., Benoist 1,177 ft., McClosky 1,372 ft., S.D. 1,478 ft.
Snell & Goldsmith 1 Schaefer ..... SW NE NW 33-2n-3w
Elev. 454 ft., T.D. 2,570 ft., P.B. to 2,535 ft., pumped 3 bbl. oil and 1 bbl. water, S.D.
L. S. Miller 1 Schmidt ..... CE¼ W½ SE 35-2n-5w
Hardin sand 2,190 ft., Devonian 2,193 ft., S.D. 2,295 ft.
Jones Bechtel & Burgess 1 Hester NW SW NE 35-3n-1w
Golconda 1,247 ft., Cypress 1,365 ft., Cypress sand 1,368 ft., 6-in. at 1,400 ft., drilling 1,403 ft.
B. E. Martin 2 Heinzmann ..... NE NE NW 9-2n-1w
Chattanooga 2,842 ft., Devonian 2,908 ft. tight, S.D. 3,005 ft.

Coles County

W. P. Miller 1 S. P. Taylor ..... NE SW NE 33-14n-10e
Pennsylvanian sand 265-68 ft., show oil and gas, 20-qt. shot, bailed good show, drilling 400 ft.

Crawford County

Bell Bros. 1 George Kersey ..... NE SE NE 1-5n-13w
T.D. 2,805 ft., P.B. to 1,360 ft.
L. A. Plumb 1 Snider ..... W½ NW SW 27-6n-12w
Drilling 575 ft., 12½-in. casing 450 ft.
Segar 1 Ray Goodwin ..... E½ NW SW 17-6n-10w
Drilling 518 ft.

(Continued on Page 116)

"WHAT WE NEEDED WAS WINGS!"

• "WITH BUSINESS picking up, we simply couldn't keep abreast of orders by using old-fashioned blue prints.

"So we added wings to our print production—speeded it up substantially—by installing simple, compact equipment for making Bruning Black and White Prints!

"Now, with our Bruning Mercury "75" Printer and No. 154 BW developing machine, we get better, *black-line* prints much faster than with blue printing. There is no time-wasting washing and drying of prints, and no objectionable gases or vapors are used in developing.

"Incidentally, BW equipment has cut our electric current costs ⅔. And, by using BW sheets cut to the exact size of our tracings, we save the time, cost and waste of trimming."

Typical of the Bruning equipment which helps make such savings possible is this new Bruning Mercury "75" Printer. It operates at a speed of 20 feet per minute, with medium speed BW paper—uses only 4,400 watts. Its new type mercury vapor quartz lamp has a guaranteed lamp life of 1000 hours! Mail the coupon for free booklet!

BRUNING *Since 1897*

SPEEDS—SIMPLIFIES—AND PROTECTS A NATION'S DRAFTING

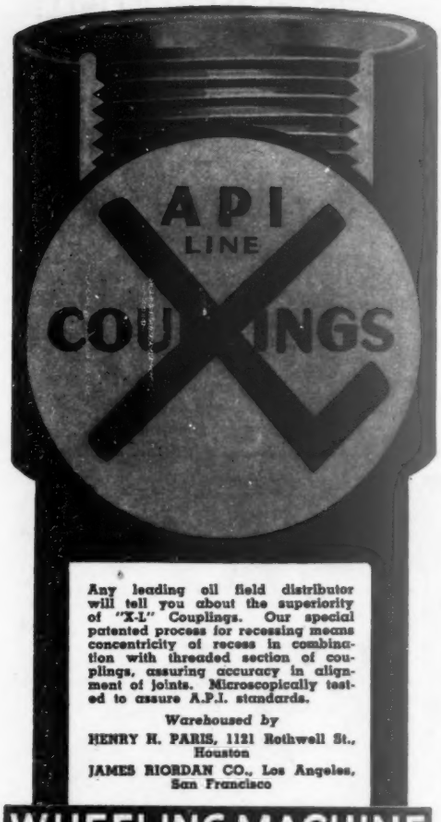
New York • Chicago • Los Angeles • Boston • Detroit
Houston • Kansas City • Milwaukee • Newark • St. Louis
Pittsburgh • San Francisco • Seattle

1060-189B

CHARLES BRUNING CO., *Inc.*
New York: 100 Reade St.
Chicago: 445 Plymouth Court
Los Angeles: 919 So. Maple Ave.

Please send me your free booklet, "New Light on Prints."

*Name*_____
*Address*_____
*City*_____ *State*_____



Any leading oil field distributor will tell you about the superiority of "X-L" Couplings. Our special patented process for recessing means concentricity of recess in combination with threaded section of couplings, assuring accuracy in alignment of joints. Microscopically tested to assure A.P.I. standards.

Warehoused by

HENRY H. PARIS, 1121 Rothwell St., Houston

JAMES RIORDAN CO., Los Angeles, San Francisco

WHEELING MACHINE PRODUCTS COMPANY
WHEELING, W.VA.

6 books for your library

Progressive oil men make use of good books about their business. Nothing quite takes the place of knowledge, and the following books are recommended highly for the particular fields for which they were written:

Law of Oil and Gas Leases and Royalties—GLASSMIRE ---------- $10.00

Geophysical Prospecting—A.I.M.E. ---------- 5.00

Field Geology—LAHEE---- 5.00

Fundamentals of the Petroleum Industry—HAGER- 3.50

Rotary Drilling Handbook —BRANTLY ---------- 3.50

Petroleum Production—CLOUD ---------- 5.00

Extend your library of sound reading with any one or all of these books. They will be send c.o.d. if desired; otherwise, full payment should accompany your order.

Book Department

The Oil and Gas Journal
Tulsa, Oklahoma

MICHIGAN OPERATIONS

Overisel and Adams Pools Are Scene of Hot Play

By OTTO C. PRESSPRICH

SAGINAW, Mich., Oct. 14.—Allegan County's Overisel sector was the hot spot of Michigan oil development during the past week as the result of the completion of a succession of commercial wells ranging in productivity to as high as 700 bbl. a day initially. Also of interest was another big producer completed in Adams-Arenac by Don Rayburn, codiscoverer of the new field.

Recording the best week since late last spring from the standpoint of new initial potential, 16 wells were completed last week for production of 5,680 bbl. a day while 11 tests, many of them of a wildcat nature, were dry. Also there were important developments in natural-gas activity, three completions of that type being announced.

Overisel was the location for 10 of the oil-producer completions. Indicating the development rush there was the fact that 15 of the 24 state Conservation Department drilling permits issued last week were for that township. Best of the new Overisel wells is Transwestern 1 Brink, rating 704 bbl., after acid. Next is W. L. McClanahan 3 Busscher, good for 504 bbl., while the others ran the scale down to 25 bbl. Only one Overisel completion was a dry hole, but in three other Allegan townships—Gun Plain, Lee and Manlius—four dry holes were on the list.

The Rayburn well in Adams was producing 1,680 bbl., after acid, from 2,880 ft. Rayburn 1 Stone, however, in an adjoining section, was dry.

Taggart Brothers' Osceola County gas-field potential took a big jump with completion of a Marion Township test for daily flow of 17,100,000 cu. ft. In Clare's Winterfield Township Taggart also completed a gasser rating nearly 3,500,000 cu. ft. and in Arenac's Clayton Township, W. E. Ross 1 Peavy was rated well over 1,500,000 cu ft. a day.

While Victor R. Wilson of Alma planned to save 1 Cook in North Star Township, Gratiot County, after getting a gas flow at around 870 ft., and start another test for the Dundee strata, a new natural-gas reserve in the Six Lakes area of Belvidere Township, Montcalm County, was revealed as L. T. Barbour of Edmore drilled the 1 Bradley into a zone at 1,307 ft. which was checked at near 2,000,000 cu. ft. a day. The test is 2 miles south of the Six Lakes field.

Sun 1 Kidder deep test in Barry County's Rutland Township, preparing to test the Trenton, was in the Niagara formation at around 4,400 ft., apparently near its limit. Meanwhile, some promise was shown by Weber Oil Co. 1 Gabel, wildcat in Lincoln Township of Osceola County. Testing after acid treatment indicated it would be good for between 20 and 30 bbl. a day from the Monroe at about 3,630 ft.

Bay County, scene of intermittent drilling activities, had one producer as MacGregor 1 Kircher in Monitor Township was rated at 130 bbl. a day, after acid. In the Winterfield-Clare area, where Sun A-1 State wildcat had a good initial natural flow of 100 bbl. a day, testing also continued before acid. The well was reported making 35 bbl. of oil to around 10 bbl. of water, with water showing a tendency to decline. In Midland's Porter field, Pure Oil completed 34 Narmore for 300 bbl.

Drilling permits for 1940 now total 876. In addition to the 15 for Overisel last week, Huron and Ottawa counties were listed for two, Salem of Allegan, Arenac, Monroe, Osceola and Van Buren for one each.

Declining production in the older fields brought a prediction that the state's 1940 total would fall 3,500,000 bbl. short of the 1939 record of 23,462,095 bbl. A Geology Division summary of 15 years of oil development showed Midland County has produced nearly two-fifths of the 125,481,000 bbl. withdrawn in Michigan since 1925, most of which was produced in the past 5 years. The report showed Midland produced 49,915,750 bbl., Gladwin 17,363,402, Isabella 16,870,000, Montcalm 7,408,000, Muskegon 6,617,000, Clare 5,781,000, Van Buren 5,408,000, Allegan 4,987,000, Ogemaw 3,657,000, Arenac 2,917,000, Saginaw 1,502,000, Oceana 116,725, Monroe 43,565.

Decision last week of the state Oil Advisory Board to lift proration from all fields except Redding of Clare is not expected to change production figures as estimated because few of the wells affected have been able to make their limit.

MICHIGAN COMPLETIONS

Allegan County

Gun Plain Township: Columbia Oil & Gas Co. 1 Gray, NE NW NW 28-1n-11w, dry, T.D. 1,475 ft.
Lee Township: Godfrey, Hosler & McConhay 1 Grevius, NW NW SE 30-1n-15w, dry, T.D. 1,581 ft.
Manlius Township: J. K. Martin 1 Doyle, SW SW NE 18-3n-15w, dry, T.D. 1,330 ft.
L. A. Schimmel, trustee, 1 Brandt, NE NW NE Sec. 28, dry, T.D. 1,361 ft.
Overisel Township: Kent Drilling Co. 1 Lankheet, SW SW SE 9-4n-14w, 60 bbl. acid, T.D. 1,486 ft.
H. C. Nelson 2 Peters, SE SW NW Sec. 9, 100 bbl., acid, T.D. 1,477 ft.
Bell & Marks 1 Lubbers, SW SW SW Sec. 15, 110 bbl., acid, T.D. 1,502 ft.
Gordon Oil Co. 2 Koopman, SE SE NW Sec. 16, 300 bbl. acid, T.D. 1,495 ft.
Gordon Oil Co. 3 Koopman, NE SE NW Sec. 16, 300 bbl., acid, T.D. 1,511 ft.
W. L. McClanahan 2 Busscher, NW SW NE Sec. 16, 216 bbl., acid, T.D. 1,500 ft.
McClanahan 3 Busscher, SW NW NE Sec. 16, 504 bbl., acid, T.D. 1,499 ft.
Transwestern Oil Co. 1 Brink, SW NW SE Sec. 16, 240 bbl., acid, T.D. 1,533 ft.
Transwestern 2 Brink, NW NW SE Sec. 16, 705 bbl., acid, T.D. 1,525 ft.
Crown Development Co. 2 Klingenberg, NE NE NW Sec. 21, dry, T.D. 1,601 ft.
W. C. Prather 1 Schaap, NW SE SW Sec. 34, 25 bbl., natural, T.D. 1,458 ft.

(Continued on Page 110)

West Central Texas

(Continued from Page 90)

Eastland County

Dobbs Oil 1 Poe, Sec. 37, Blk. 3, H.&T.C. Sur., top Caddo lime 2,888 ft., drilling 2,912 ft.

Fisher County

F. A. Stephenson 1 Maberry, SE SW Sec. 56, Blk. 1, H.T.&B. Sur., 3,400-ft. test, cored 3,285-3,302 ft., recovered sand showing oil, set casing, drilled plug, 800 ft. O.I.H., 5½-in. at 3,271 ft., swabbing and flowing by heads 3,302 ft., S.D., no test.
General Crude Oil 12 Flanigan, center of old Royston field, Ordovician test, drilling 2,556 ft.

Hamilton County

A. J. Caldwell 1 W. W. Jones, 1,002 ft. from NE, 150 ft. from SE lines, W. H. Crowder Sur., rigging up to drill deeper below 3,010 ft.
C. J. Meyers 1 Oats, 420 ft. from S and 1,035 ft. from E lines, F. Hughes Sur., 4,000-ft. test, drilling 710 ft.

Haskell County

Bradford & Robertson et al 1 Coody, SW cor. N. Hapgood Sur., Palo Pinto lime test, spudding.

Hood County

Aztec Oil 1 Gallagher, 500 ft. from S and 1,326 ft. from E lines of Robert Alway Sur., 3,000-ft. test, drilling 900 ft.

Jones County

T. D. Humphrey 1 Leslie & Lipman, 2,705 ft. from N and 4,320 ft. from E lines of Sec. 18, Blk. 15, T.&P. Sur., 2,800-ft. test, spudding.
Best 1 A. A. McDuff, 5,200 ft. S, 1,100 ft. E lines of J. J. Hughes Sur., set 6⅝-in. casing at 2,040 ft., S.D. 2,393 ft.

Parker County

Brown & Gardner Bros. 1 Gilbert, T.&P. Sur., Abst. 1958, fishing tools 4,800 ft., T.D.
C. Leidecker and William Holland 1 J. A. Boyd, NE NE of S 100 acres of A. J. Edwards Sur., 4,500-ft. test, S.D. 2,410 ft.

San Saba County

Three Widows Oil 1 Ballard, NW cor. S½ Sec. 80, H. Behrenroth Sur. 506, 2,000-ft. test, S.D. for 10-in. at 450 ft.

Shackelford County

Tal Vez Oil 1 Dyer, Sec. 83, Blk. 12, T.&P. Sur., showing oil 1,093-1,110 ft., drilling 1,230 ft.
Carson 1 Elliott, Sec. 49, B.A.L. Sur., resumed drilling after being S.D. at 1,685 ft., Caddo lime test to 3,620 ft., drilling 2,830 ft.

Tarrant County

Hickey 1 Baltzelle, NE cor. William Scott Sur., fishing casing 935 ft.

Taylor County

Ce-beth Oil 1 City of Abilene, south shore of Lake Abilene on city property, 4,000-ft. test, corrected report, drill pipe stuck, T.D. 1,940 ft., S.D.
K. B. Nowles 1 Hardin-Simmons Univ., S½ NW Sec. 36, Lunatic Asylum lands, 9½ mi. S Abilene, S.D. 38 ft.

Prospects for Deep Pay at Gueydan Look Favorable

By NEIL WILLIAMS

NEW ORLEANS, La., Oct. 14.—While there were no outstanding developments in the Louisiana Gulf Coast the past week, several outpost wells in proven fields were attracting considerable attention.

In the Gueydan field, Vermilion Parish, and approximately 3,300 ft. south of production, Fohs 1 Mulvey Irrigation Co. was below 9,735 ft. where 7-in. casing was cemented following an electrical survey which showed favorable indications in a sand section at 9,230-70 ft. This is one of the deepest tests drilled on the flank of this salt structure and a successful completion in the 9,200-ft. level would open a new producing horizon for the field.

In the same parish and located about ½ mile west of the discovery well of the Erath field, Humble Oil & Refining Co. was preparing to test 1 Vermilion Parish School Board. Testing of the well has been delayed due to a leak in the casing below 10,626 ft. The hole is bottomed at 11,676 ft., and 7-in. casing was cemented at 11,499 ft. Sand showing gas was reported logged at intervals from 10,370-80 ft. and 10,390-10,405 ft., while sand showing oil was reported cored at 11,480-90 ft.

South Crowley Field

Humble 2 Leger, an east offset to the discovery well of the South Crowley field, Acadia Parish, is drilling ahead in sandy shale below 9,000 ft. The well is being drilled deeper after 4 ft. of sandy shale with an oil show was logged in the discovery pay at intervals from 7,959-89 ft. Location for an interesting wildcat was announced for the parish as Herton Oil Co. prepared to move in material for 1 Leonard, located about 9 miles north of the town of Crowley in 29-7s-1e.

In the La Place field, St. John the Baptist Parish, Pan American 2 Mill, about 1,300 ft. west of the discovery well, is bottomed at 9,050 ft., and 7-in. casing was cemented at 8,985 ft. This will be the third producer for the field from which distillate production is developed from two horizons at 8,100 ft. and 8,800 ft.

Another distillate producer was added to the South Roanoke field, Jefferson Davis Parish, as Continental 3 Calcasieu National Bank flowed 122 bbl. of distillate in 21½ hours through a ¼-in. choke. Tubing pressure was 3,950 lb. The well was drilled to a total depth of 9,961 ft. and production is from the regular pay at 9,875-9,910 ft. Location is in 36-10s-4w.

Iowa Deep Tests

Two tests drilling for the deep pay recently opened in the Iowa field, Calcasieu Parish, were nearing their objective. Shell 32 Heyd, a south offset to the discovery well, is bottomed in sand and shale showing gas at 8,127 ft. and is preparing to core for the 8,200-ft. sand. Magnolia 14 Wait is drilling in shale at 8,087 ft., while 15 Wait is preparing to spud. With two prolific producers already completed in the deep sand it is believed that production from this sand will overlap the original limits of the field and several locations are planned around the edges of the field. Approximately 2,000 ft. northwest of Magnolia 9 Wait, the discovery well, Glassell & Glassell are preparing to spud 1 Snowden in 12-9s-7w, while on the northeast side in 7-9s-6w, another location is expected to be made in the near future.

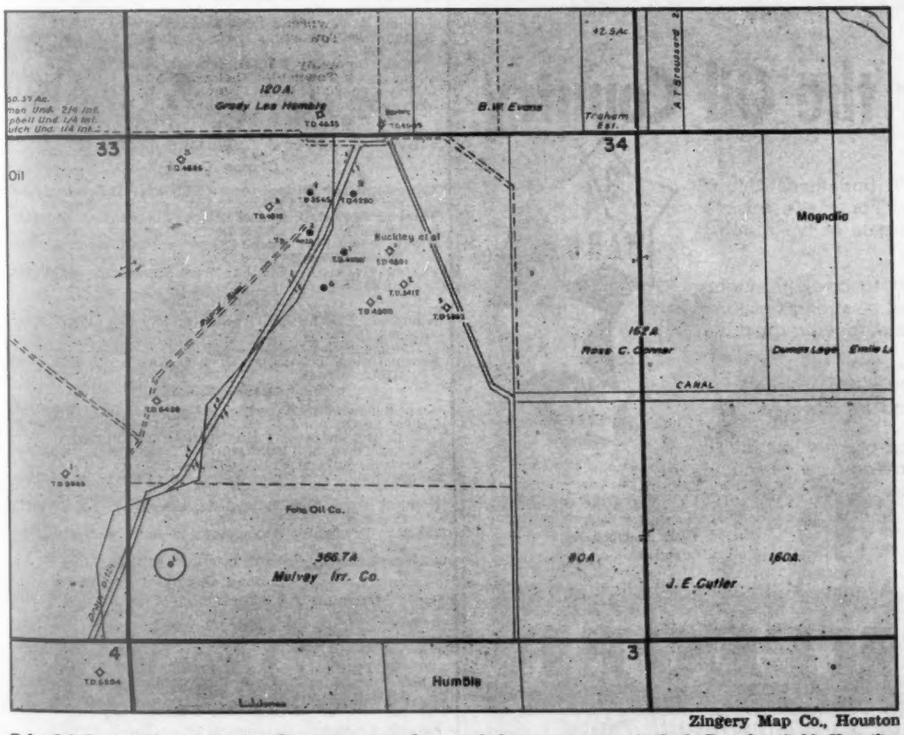
Texas 14 St. Martin Land Co., located in the Plumb Bob field, St. Martin Parish, flowed 240 bbl. of 24-gravity oil per day through a ¼-in. choke from perforated casing at 8,994-9,010 ft. Location is in 21-8s-7e.

Wildcat Locations

Calcasieu Parish gained an important wildcat operation as J. C. Chance staked location on the Big Woods prospect for 1 Industrial Lumber Co. in 25-8s-12w. The area has been worked with geophysical instruments and a deep test, 1-B Industrial Lumber Co., was drilled by Humble Oil & Refining Co.

Another Wilcox sand producer was added to the Neale field, Beauregard Parish, and a second test was in the process of completion. Atlantic 3 Spiers was completed in the 8,300-ft. pay for an estimated flow of 300 bbl. per day through a ¼-in. choke, while 2 Musser-Davis Lumber Co. was being tested through perforated casing in the 8,300-ft. sand.

Location for a second deep test was staked on the Pointe Au Fer prospect, Terrebonne Parish, by Barnsdall Oil Co. for 2 Nelson in 3-21s-11e. The well is about 1 mile southwest of 1 Nelson which was abandoned at a total depth of 11,718 ft. Location is on a block of several thousand acres which has been rechecked with geophysical instruments.



Zingery Map Co., Houston

Fohs Oil Co. 1 Mulvey Irrigation Co., prospective deep-sand discovery on south flank Gueydan field, Vermilion Parish

LOUISIANA GULF COAST COMPLETIONS

Acadia Parish

Jennings field: B. M. G. S. Oil Co. 2 Iowa-Jennings, 12 bbl. oil and 12 bbl. salt water, pumping, sand 1,568-73 ft., T.D. 1,573 ft.

Calcasieu Parish

Cameron Meadows field: W. T. Burton 4 Cameron Parish School Board, 100 bbl., 10/64-in. choke, sand 4,040-4,150 ft., T.D. 5,847 ft.

Edgerly field: Emerson Oil Corp. 15 Hunter, 232 bbl., ¼-in. choke, top sand 3,592 ft., T.D. 3,614 ft.

East Baton Rouge Parish

University field. Sugarfield Oil Co. 1 Nelson, 282 bbl., 10/64-in. choke, top sand 6,792 ft., T.D. 6,812 ft.

Evangeline Parish

Ville Platte field: Continental 2 Fontenot, Tract 5, 130 bbl., ¼-in. choke, T.D. 8,974 ft.

Continental 1 Fontenot, Tract 4, 450 bbl., ¼-in. choke, sand 9,042-57 ft., T.D. 10,160 ft.

La Fourche Parish

Delta Farms field: Tide Water 2 Delta Farms Co., junked, T.D. 11,941 ft.

Golden Meadow field: Brown & Wood 1 State, 196 bbl., ¼-in. choke, perf. casing 5,154-70 ft., T.D. 5,492 ft.

F. P. Dayvault 1 Meyers, 145 bbl., 10/64-in. choke, perf. casing 5,427-42 ft., T.D. 5,490 ft.

Texas 16 L. L. & E. Golden Meadow, 152 bbl., 9/64-in. choke, perf. casing 6,222-42 ft., T.D. 8,795 ft.

Tippett Drilling Co. 2 Curol, 180 bbl., 9/64-in. choke, perf. casing 5,150-65 ft., T.D. 5,200 ft.

La Fourche Crossing field: Mikton Oil Co. 4 Martinez, 304 bbl., ¼-in. choke, perf. casing 10,105-13 ft., T.D. 10,179 ft.

Leeville field: Texas 75 Leeville, 366 bbl., 5/32-in. choke, perf. casing 8,475-8,500 ft., T.D. 8,600 ft.

Rapides Parish

Cheneyville field: Amerada 13 Weil, 260 bbl., ¼-in. choke, perf. casing 5,655-80 ft. and 5,690-5,702 ft., T.D. 5,740 ft.

S. W. Richardson 15 Weil, 262 bbl., ¼-in. choke, perf. casing 5,680-85 ft. and 5,695-5,715 ft., T.D. 7,968 ft.

St. Martin Parish

Anse La Butte field: Glassell & Glassell 1 Weeks, dry, T.D. 4,235 ft.

Stanolind 1 Dupuis, 369 bbl., ¼-in. choke, perf. casing 4,580-4,610 ft., T.D. 4,728 ft.

Plaquemines Parish

Garden Island field: Texas 48 State, 227 bbl., 5/32-in. choke, perf. casing 4,254-4,320 ft., T.D. 5,915 ft.

LOUISIANA GULF COAST DRILLING REPORT

Avoyelles Parish

W. C. Brock et al 1 Snowden, NE of Marksville, 22-3n-5e, 9⅝-in. casing cemented 890 ft., drilling shale 1,210 ft.

Calcasieu Parish

W. T. Burton 1 Mayo Realty Co., South Lake Charles prospect, 8-11s-8w, drilling shale 9,978 ft.

Cameron Parish

Pure 19 Stanolind Oil & Gas Co., Sweet Lake field, T.D. 7,391 ft., 5½-in. casing cemented for a production test.

Iberia Parish

Texas 6 Jefferson Island Salt Co., Jefferson Island field, drilling shale 8,623 ft.

Jefferson Parish

Titanic Oil Co. 1 Marrero, 2-13s-23e, drilling sand and shale 4,180 ft.

Jefferson Davis Parish

Union Sulphur 1 Fontenot, SE flank Welsh field, 35-9s-5w, drilling shale 9,505 ft.

Livingston Parish

Humble 1-B Great Southern Lumber Co., 21-7s-4e, drilling shale 7,220 ft.

Plaquemines Parish

Gulf 1 State, Black Bay prospect, drilling shale 10,911 ft.

St. James Parish

Shell 1 Federal Land Bank, La Pice field, coring sandy lime 10,480 ft.

St. John the Baptist Parish

Pan American 2 Mill, La Place field, 1,300 ft. W of dis-

(Continued on Page 110)

Deep West Virginia Gas Test Is Dry in Oriskany

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Oct. 14.—The deep test of Glen Roberts et al on the C. W. Cook farm in Tygart district, Wood County, West Virginia, proved dry in the Oriskany sand. The Corniferous lime was topped at 4,475 ft., Oriskany 4,597 ft. and the tools are now drilling at 4,676 ft. It is located on a high in the Parkersburg syncline and on the Belleville Quadrangle is 5.1 miles south Lat. 39° 15′ and 3.6 miles west Long. 81° 30′. It is about 2½ miles south 60° from Mineral Wells. Several previous wildcats on the flanks also proved disappointments.

During the past week in the lower eastern fields 30 wells were completed of which 8 were dry, 19 gas wells and 3 oil producers with a daily initial of 57 bbl.

SOUTHWEST PENNSYLVANIA

On Chestnut Ridge in South Union Township, Fayette County, New Penn Development Co., William E. Snee et al are nearing the Oriskany sand deepening the Summit Hotel (Heyn) discovery well. The top of the chert in the Onondaga was at 6,597 ft. and the tools are now drilling at 6,764 ft. The last few runs have shown a decided appearance of shale unlike the typical cherty Onondaga. In the No. 3 Summit Hotel the location has been cleared and the rig is being moved in.

Here the Peoples Natural Gas Co. is drilling at 6,010 ft. in 2 Piedmont Coal Co. and having been retarded cementing a cave in the Marcellus. Their No. 3 is drilling at 1,934 ft. In North Union Township Wasson et al have reached 5,476 ft. in 2 J. H. Sorg. No progress was made in the test on Laurel Ridge, 1 Gregg L. Neel, Stewart Township, Fayette County, which is standing at 8,002 ft.

Allegheny County

South Fayette Township: Homer Nixon 1 James Parkes, dry, Fourth sand 2,540-55 ft., Fifth sand 2,608-18 ft., show gas 1,865 ft.

Clarion County

Limestone Township: George Hall 2 C. Fairman, 133,000 cu. ft. gas, Murrayville and Speechley sands, T.D. 2,815 ft.

Red Bank Township: John Lasher et al 1 Cora M. Truitt, 18,000 cu. ft. gas, Bradford sand, T.D. 3,254 ft.

T. W. Phillips 1 Nathan Wolfgang, 68,000 cu. ft. gas, Murraysville and Bradford sands, T.D. 3,543 ft.

Greene County

Jackson Township: Equitable 1 Mrs. Jason Smith, 272,000 cu ft. gas, Big Injun sand 2,208 ft., gas 2,302 ft., T.D. 2,318 ft.

Monongahela Township: Wahler Powers 1 Eva Katchanovitch, 5,120,000 cu. ft. gas, Big Injun sand 1,255 ft., gas 1,395 ft., T.D. 1,400 ft.

Wayne Township: Freeland et al 3 H. D. Freeland, 146,000 cu. ft. gas, Bayard sand 3,153 ft., gas 3,156-60 ft., T.D. 3,222 ft.

Indiana County

Brush Valley Township: T. W. Phillips 1 F. M. Ramsey, 25,000 cu. ft. gas, Speechley, T.D. 3,282 ft.

Washington County

South Franklin Township: A. V. Lewis et al 3 B. A. Bonham, 40 bbl., Fifth sand 3,104 ft., oil 3,108-11 ft., T.D. 3,116 ft.

WELLS DRILLING

Allegheny County

Findlay Township: Oscar O. Goss 1 C. F. Chubb, location.

Ohio Township: Martin Brothers & Co. 1 P. Martin, drilling deeper 1,500 ft.

Shaler Township: Price Brothers 1 Kate Dressel 500 ft.

West Deer Township: Harbison et al 1 McIntyre 500 ft.

Armstrong County

Bethel Township: T. W. Phillips 1 Mrs. H. E. Gilchrist, location.

Cowanshannock Township: Peoples 1 Mike Miketa 2,595 ft.

Peoples 1 Jay Kough, 2,850 ft.

Equitable 1 J. H. Hover, building rig.

Kiskiminitas Township: Chestnut Ridge 2 E. J. Shirey, 318 ft.

Shaw & Townsend 1 Michale Zitterberg, 750 ft.

Kittanning Township: Local Company 1 G. A. Scholl, 1,900 ft.

Local Company 1 B. H. Schreckengast, 660 ft.

Plum Creek Township: Shelocta 1 Amos Boyer, 2,185 ft.

Valley Township: Local Company 2 W. L. Pierl, 2,850 ft.

Wayne Township: Watson et al 2 W. D. McIntire, 2,740 ft.

Penn Wayne Gas 2 Ed. Clever, 1,400 ft.

Humphrey, Stone & McCall 1 James Bittinger, 2,280 ft.

Daniel Sowers et al 2 William Rupp, 395 ft.

Clarion County

Limestone Township: Peoples 2 Mrs. M. G. Brocius, 2,250 ft.

Monroe Township: Owens Illinois Glass 1 J. C. Heinrick, 2,850 ft.

Piney Township: Frank Shreffler 7 Clarion County Home, 935 ft.

Porter Township: Climax Brick 1 Samuel McMaster, 1,620 ft.

Fayette County

Nicholson Township: Greensboro Gas 1 Frank Mozo, 563 ft.

Duquesne Gas Co. 1 George Maher, 455 ft.

South Union Township: Orville Eberly et al 1 Mary Huhn, 925 ft.

Greene County

Aleppo Township: Peoples 1 S. E. Rinehart, 1,395 ft.

Center Township: J. B. Orndoff 3 Mattie I. Scott, 3,000 ft.

J. G. Devine et al 1 Hugh Smith, spudding.

Jackson Township: Equitable 3,571 Ocie M. Kerr, 971 ft.

Brummage et al Frank Gilbert, 1,631 ft.

Monongahela Township: Harry Scott et al Silas Provins, 20 ft.

Richhill Township: Natural Gas Co. of W. Va. 2 Harry Coffield.

Whitely Township: Waynesburg Home Gas 2 A. J. Morris, 945 ft.

Greene County Gas Co. 1 James Orndoff, 1,060 ft.

Indiana County

South Mahoning Township: John Wray et al 2 James Lukehart, 3,355 ft.

T. W. Phillips 1 Thomas Hoover, 2,405 ft.

Washington Township: Peoples 1 Calvin Cribbs, 3,910 ft.

T. W. Phillips 1 C. M. Brewer, 2,808 ft.

T. W. Phillips 1 Sadie Anderson, 2,285 ft.

White Township: T. W. Phillips 1 Martha B. Campbell, 3,335 ft.

Washington County

Amwell Township: Carnegie 2 W. C. Horn, 2,275 ft.

Chivers et al 2 James Bristor, 920 ft., reaming.

North Strabane Township: Carnegie 1 Cleli Gilkeson, location.

ON TOUR all over the Oil Country

WHEREVER they're drilling for oil you'll find these tough little Bantam Weights in the picture. For these husky P&H Model 150 (½ yd.) shovels, have been pals of the roughnecks for years.

P&H excavators have proved their ability to come through in the pinches: they're built of rolled alloy steel — strong enough to "take it" year after year. And they *get around*, moving quickly and easily on true tractor-type crawlers.

That's why the oil country specifies P&H for digging cellars and slush-pits, erecting derricks, trenching and laying pipe.

And *travel* — these P&H's ride around the country on their own trailers. You can tow 'em anywhere, driving at a 40 mile-an-hour clip and pick up jobs all over the state.

Write for literature

All types and sizes from ⅜ to 5 cu. yds. capacity. Investigate the new P&H excavator control—giving you smoother, faster production.

General Offices: 4527 West National Avenue, Milwaukee, Wisconsin

HARNISCHFEGER
CORPORATION
EXCAVATORS • ELECTRIC CRANES • ARC WELDERS P&H HOISTS • WELDING ELECTRODES • MOTORS

Nottingham Township: Beedle & Clark 1 Pittsburgh Coal Co., 1,870 ft.
Somerset Township: Carnegie 2 John D. Amos, location.
Carnegie 1 Elizabeth Nicholl, 130 ft.
Equitable 1 D. A. Ripple, 300 ft.

Westmoreland County

Allegheny Township: Apollo Gas 2 Sadie J. Anderson heirs, location.
Hyde Park Foundry 2 Andrew Grinder, 1,480 ft.
Bell Township: Peoples 1 John McCreary, 1,670 ft.

WEST VIRGINIA

In Ravenswood district, Jackson County, Columbian Carbon Co. has a location for another deep wildcat. It is on the F. L. Roliff et al lease about 3 miles northeast of Odaville. On the quadrangle it is located 0.25 mile west of Long. 81° 35′ and 3.95 miles south of Lat. 39° 00′. In this district this company is drilling 1 P. F. Riggs at 1,035 ft. after cementing back to 960 ft. Guy Boggess and others are drilling 1 H. L. Tallman at 2,070 ft. after running casing to 2,033 ft.

In Harrison County the deep rotary test of the Hope Natural Gas Co. on the C. S. Gribble farm in Grant district is drilling at 7,299 ft. or 234 ft. in the Corniferous lime.

Boone County

Washington district: Owens Libby Owens 22 Little Coal Land Co., dry, Big lime 1,864-2,015 ft., show gas 23,520 cu. ft., Big Injun 2,015-75 ft., Berea 2,577-2,605 ft., T.D. 2,635 ft.

Braxton County

Birch district: Pittsburgh & W. Va. 7,730 Grace Berry, dry, Big lime 1,783 ft., T.D. 2,038 ft.

Cabell County

Barboursville district: Merritts Creek Gas Co. 1 Pineview Land Co., 237,000 cu. ft. gas, Big lime 1,230-1,380 ft., Big Injun 1,445-1,530 ft., Berea 2,030-45 ft., Brown shale 2,679-3,005 ft., gas 2,682-2,900 ft., T.D. 3,021 ft.

Calhoun County

Sherman district: M. V. Knight 1 J. B. Ward, 12 bbl., Injun sand, T.D. 2,000 ft.
South Penn Natural Gas 5 J. S. Sharpe, 5 bbl., Injun sand 2,145 ft.
Bruce Ferrell, Jr., 1 Lucinda Erlewine, dry, Big lime 2,105-2,200 ft., Big Injun 2,200-53 ft., 17,000 cu. ft. gas at 2,125 ft., will abandon, T.D. 2,273 ft.

Gilmer County

Center district: Mud Lick Oil & Gas Co. 1 Coy Skinner, 300,000 cu. ft. gas, Maxton sand 1,380-1,465 ft., gas 1,412-37 ft., Big lime 1,544-1,604 ft., gas 1,583-90 ft., Big Injun 1,604-1,706 ft., T.D. 1,740 ft.

Lewis County

Collins Settlement district Massey Oil & Gas Co. 1 George Keith, 84,000 cu. ft. gas, Big Injun 1,840-1,931 ft., gas 1,833-91 ft., T.D. 2,760 ft.

Clay County

Buffalo district: Pittsburgh & W. Va. 7,763 P. M. Summers, dry, Big lime and Big Injun sands, T.D. 1,730 ft.
Henry district: Wallbach Oil & Gas Co. 2 Mary D. Hanshaw, 168,000 cu. ft. gas, Big lime 1,626 ft., gas 1,661-64 ft., T.D. 1,728 ft.

Pleasants County

McKim district: Hart Oil Co. 3 Marion Hart heirs, 500,000 cu. ft. gas, Maxton sand, T.D. 1,750 ft.

Ritchie County

Murphy district: B. B. Cox 1 W. J. & F. W. Burwell, 98,000 cu. ft. gas, Keener sand, T.D. 1,940 ft.

Roane County

Harper district: John Raines & Son 1 fee, 300,000 cu. ft. gas and 5 bbl. oil, Salt sand 1,528 ft., gas 1,534-74 ft., oil 1,604-18 ft., T.D. 1,618 ft.
Brawley Reed Oil & Gas Co. 1 G. W. Gandee, dry, Salt sand 1,556 ft., T.D. 1,677 ft.

Wayne County

Union district: Industrial Gas Corp. 1 H. M. Adkins, 325,000 cu. ft. gas, Big lime 1,170-1,340 ft., Big Injun 1,395-1,430 ft., Berea 1,978-98 ft., Brown shale 2,400-2,644 ft., gas 2,430, 2,640, 2,643, 2,776, 2,788 ft., R.P. 540 lb. 14 hours, T.D. 2,873 ft.
D. C. Stephens 1 C. W. Cyrus, 125,000 cu. ft. gas, Berea, T.D. 2,890 ft.

Wetzel County

Church district: Carnegie 2 Mary A. Soles, dry, Fifth sand, T.D. 3,200 ft.
Grant district: Carnegie 1,320 George H. Mabella Moore, drilled deeper, small gas, plugged, Fifth sand 3,117-23 ft., gas 3,118 ft., T.D. 3,150 ft.

ORISKANY GAS FIELDS

Kanawha County

Poca district: Columbia Carbon 1 Fay Hughart, 421,000 cu. ft. gas, Corniferous lime 4,906 ft., Oriskany 5,016 ft., T.D. 5,106 ft.
Godfrey L. Cabot 5 Putnam Co., 1,500,000 cu. ft. gas, Corniferous lime 4,993 ft., Oriskany 5,091 ft., drilling 5,102 ft.

DRILLING

Poca district: Columbia Carbon 1 H. C. Jones, Corniferous 4,912 ft.
Godfrey L. Cabot 3 J. L. McLean heirs, Oriskany sand 4,808 ft.

Jackson County

Washington district: Godfrey L. Cabot 1 E. C. Comer, 467,000 cu. ft. gas, Corniferous 4,862 ft., Oriskany 4,992 ft., gas 5,014-22 ft., T.D. 5,076 ft.

NEW WORK

Braxton County

Birch district: Pittsburgh & W. Va. 7771 E. R. Hale, elev. 1,059 ft.

Calhoun County

Sherman district: McCall Drilling Co. 1 Daisy Wilson, elev. 845 ft.
White Pine 2 Edna Ferguson, elev. 960 ft.
McCall Drilling Co. 2 Bud Kelly, elev. 1,170 ft.

Clay County

Henry district: Joe Rubin 2 Adena Corp., elev. 1,244 ft.
Buffalo district: Pittsburgh & W. Va. 7,774 Amanda Austin Byrne, elev. 1,463 ft.
Otter district: Pittsburgh & W. Va. 7,765 Ed. L. Boggs, elev. 1,270 ft.

Doddridge County

West Union district: Braden & Creighton 9 T. D. Swiger, elev. 1,011 ft.

Gilmer County

Glenville district: Pittsburgh & W. Va. 7,776 B. S. Messenger, elev. 972 ft.
Carnegie 1,545 Sallie N. Showalter et al.

Harrison County

Eagle district: Eagle Gas 1 T. J. Lyons, elev. 1,205.1 ft.

Kanawha County

Poca district: G. L. Cabot 5 J. L. McLean heirs.

Lincoln County

Union district: Harmon Gas 1 Minnie F. Adkins heirs, elev. 880 ft.

Jackson County

Ravenswood district: Columbia Carbon 1 F. L. Roliff et al, elev. 661.8 ft.
Ripley district: United Fuel 4,896 Ethel Duff Monday, elev. 892.4 ft.

Nicholas and Clay Counties

Jefferson and Pleasant districts: Elk River Gas Co. 1 Ingals tract (Samuel Stephenson et al), elev. 905 ft.

Pleasants County

Washington district: W. C. Patterson 28 Calvin Conway, elev. 940 ft.

Putnam County

Curry district: Edwards Gas Co. 1 Frank Hall & J. T. Edwards, elev. 1,005 ft.

Roane County

Harper district: American Oil Dev. Co. 1 A. H. Romine, elev. 1,058.8 ft.

Tyler County

Centerville district. MD O. & G. Co. 2 Z. M. Pierpoint, elev. 864 ft.
Tyler Wood O. & G. Co. 1 W. G. Pierson, elev. 873 ft.

Wayne County

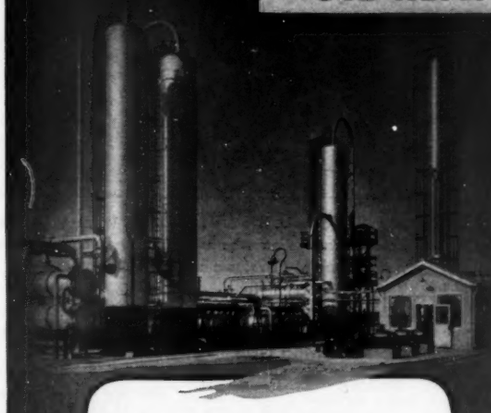
Union district: Basil S. Burgess 1 Pearly Bromfield, elev. 593.92 ft.
Industrial Gas Co. 1 J. D. & Pearl Baker, elev. 725 ft.

Wood County

Williams district: Hoaglin Oil Co. 9 Lillian Dye, elev. 806.5 ft.

The Powell Line is COMPLETE

• • • FOR EVERY SERVICE IN THE PETROLEUM AND OIL REFINING INDUSTRY



Natural Gasoline Manufacturing

HERE'S A POWELL VALVE THAT HAS PROVED ITS DEPENDABILITY OVER YEARS OF FAULTLESS SERVICE

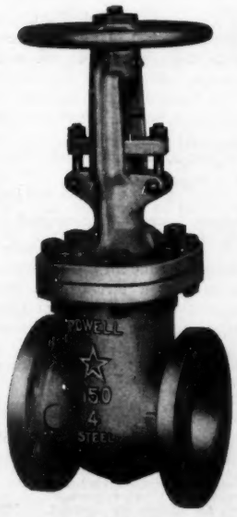


FIG. 1503—CAST STEEL

As in all Powell Cast Steel products, here is a valve of improved design, assuring long, safe, and dependable service. All vital working parts are produced to gauge, are interchangeable, and of equal wearing quality. Guide-ways for wedges in gate valves are accurately machined to given dimensions; seat faces are machined in direct relation to these guide-ways; special form of thread of more than ample length holds rings securely; special attention to pitch of threaded sections on stems; bonnets designed with same wall section as bodies; non-corrosive packing-glands . . . these and other features, many entirely exclusive with Powell, account for the better performance you can count on from this particular valve in Refining service.

Remember—
There's more to POWELL QUALITY than meets the BUYER'S EYE!

Follow our series of monthly page advertisements revealing the hidden qualities that exist in all POWELL products

POWELL VALVES

THE WM. POWELL CO. • CINCINNATI, OHIO

By T. R. INGRAM

Cole Creek Field Is Extended In Two Directions

DENVER, Colo., Oct. 14.—The Rocky Mountain area had 10 completions, of which 3 were oil wells, 4 were gas wells, and 3 were dry holes. There were six new operations.

The most important completion was General Petroleum Corp. 7-22-P at Cole Creek, in Wyoming, which extended the proven area for the Shannon sand ½ mile to the southeast. A. B. Cobb 5 Novick, only completion in Lance Creek, made 10 bbl. an hour, a comparatively small well on the west edge of the field. Kinney-Coastal 4 Government, Garland field, was completed in the Frontier sand for 3,000,000 cu. ft. of gas. The J. E. Lonnecker shallow test at Sherard was abandoned at 91 ft. Cut Bank reported a dry hole in R. C. Tarrant 3 Wold-fee and a 15,000,000-cu. ft. gas well in Glacier Production Co. 3 Hall. Kevin-Sunburst had one completion, a 15-bbl. well in L. J. Yealy 15 Shaw. Northwest New Mexico had a dry hole in Tague, Greer et al 1 Santa Fe, in McKinley County, a small producer at Hospah in Petroleum Products Corp. 12 Hospah, and a small gas well in Kutz Canon in Southern Union Production Co. 1 Government.

New operations included a location at Cole Creek for General Petroleum 2 in the La Barge field in Sublette County, another test for the Dewey dome in Weston County in W. H. Connor 1 State, two in Cut Bank, and two in Kevin-Sunburst.

COLORADO

Fremont County

U-Tex Oil 1 Hassler ..... NE 28-20s-69w
Drilling at 360 ft., cemented 8¼-in. at 75 ft.

Huerfano County

R. L. Jewett 1 Valdez ..... SE NE 30-28s-67w
Spudded. Corrected location.

La Plata County

Nick Spatter 1-X Bryce.....SW SW 31-33n-9w
Drilling in hard dark shale at 4,250 ft., show of gas at 4,225 ft.

Logan County

West Plains 1 Sheldon.....SE NW SW 3-10n-55w
Drilling inside 8-in. casing at 2,600 ft. in hard lime formation and feeling for Hygiene sand.

Moffat County

Steamboat Springs Synd. 1 Sutton NE NE SW 1-5n-96w
Drilling 2,321 ft. in pink sand and shale.
Texas 2 Wick ..... Lot 9, 10-4n-91w
T.D. 4,555 ft., testing on pump.
Mountain Fuel Supply 6-B Wilson NE SE 14-12n-100w
Drilling 3,374 ft.
Texas 6 Knowlton.....SE cor. Lot 8, 10-4n-91w
T.D. 4,582 ft. in Sundance, 257 ft. of 4½-in. liner cemented at 4,570 ft., swabbing.

Park County

South Park Oil 1 Lamar.....NE NE SE 34-11s-75w
Drilling 7,476 ft. in saturated brown sand.

Rio Blanco County

Texas-California 5 Unit ..... NW NE NE 34-3n-94w
Location.
Raven O. & R. 31 Government SW NW NE 31-2n-102w
Rigging up.
Buford Oil 1 Government.....SW SW 16-1n-91w
Drilling at 4,233 ft. in lime.
Texas-California 4 Unit.....NW NW NW 2-2n-94w
T.D. 6,559 ft., testing.

WYOMING

Crook County

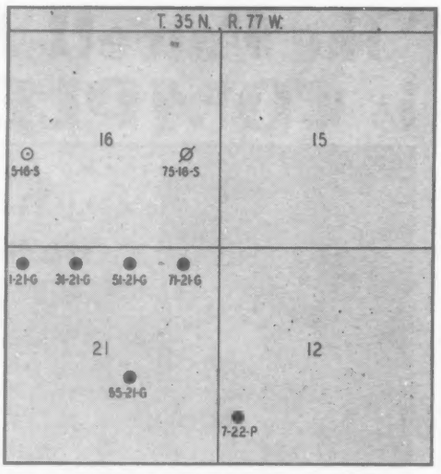
Vickers-Continental 1 Duncan-Lobban.....
NE NW SW 28-57n-64w
Drilling 1,846 ft. in pink lime, water sand at 1,809-22 ft.

Natrona County

General Petroleum Corp. is completing two Shannon sand wells at Cole Creek, both of which mark extensions of the producing area. Its No. 7-22-P, NW SW SW 22-35n-77w, is testing at 4,570 ft., total depth, and latest figure is that it pumped 140 bbl. in 24 hours, 10 bbl. less than initial of 150 bbl. It is located ½ mile southeast of No. 55-21-G, the discovery well in the Lakota sand at 8,016 ft., which recently was plugged back to produce from the Shannon and made 250 bbl. a day.

The other near completion is No. 5-16-S, NW NW SW 16-35n-77w, and is 6 ft. in saturated Shannon sand at 4,603 ft. It is waiting after cementing the 7-in. at 4,593 ft. It is located ½ mile north of No. 1-21-G, the discovery in the Shannon, and ¾ mile west of No. 75-17-6, which went below 8,000 ft. and was plugged and abandoned. These completions will give the company seven producers in the Shannon. These are being drilled to that horizon not only to develop production for the White Eagle unit refinery at Casper, but to determine the subsurface geology with a view to developing the deeper pays at a later date.

The company has completed and is putting into operation its 12-mile 4-in. pipe line from the field to the refinery. One new location was released, an inside well in its No. 57-16-S on the state lease.



Cole Creek field, Natrona County, Wyoming, where Shannon sand area was extended north and southeast in two General Petroleum wells

General Petroleum 57-16-S....NW SW SE 16-35n-77w
Building rig. First report.
Lewis Gebhart 1 Government..NW NE SE 10-39n-78w
Resumed at 1,907 ft. and drilling at 1,948 ft.

Niobrara County

Lance Creek had only one completion, an outside well in the Leo sand on the west side in A. B. Cobb 7 Novick, NW SE SW 6-35n-65w, which averaged 10 bbl. an hour at 5,332 ft., total depth, from the Leo, topped at 5,299 ft., after acidizing with 1,000 gal.

Continental 21 Tom Bell.....NW SE SE 33-36n-65w
Drilling 2,942 ft. in shale, cemented 10¾-in. at 309 ft.
Argo 9 Ford.....SE SW NE 33-36n-65w
Drilling at 4,214 ft., top red beds 4,123 ft.
Continental 20 Tom Bell.....NW SE SE 33-36n-65w
Drilling 5,328 ft. in lime, red marker at 5,213 ft.

Park County

Kinney-Coastal Oil Co. 4 Government, SE SW 13-56n-98w, in proven territory in the Garland field, was completed in the Frontier at 1,188 ft., total depth, for 3,000,000 to 4,000,000 cu. ft. of gas a day.

Continental 4 Northern Pacific-1 SE NE SE 23-58n-98w
Coring at 3,084 ft., top of Tensleep at 3,054 ft., cemented 7-in. at 3,029 ft.
Resolute 2 State.....SW SW 16-57n-101w
T.D. 10,121 ft., testing through liner cemented at 10,005 ft.

Sublette County

North La Barge Oil 5 Government....NE 28-27n-113w
Spudding. First report.
Marvel Oil 5 Government.....SE 28-27n-113w
Spudding. First report.
North La Barge Oil 1 Govt. ..NE SE NE 28-27n-113w
T.D. 1,050 ft., testing.
L. W. Davis 1 .....SE SE NE 33-27n-113w
T.D. 1,356 ft., saturated sand 1,313-55 ft., testing.
North La Barge 1 State.....SW SW SE 16-27n-113w
Rigging up.
Texas 2-G Government.....NE NW NW 27-27n-113w
Coring 1,069 ft., 8⅝-in. at 881 ft.

Sweetwater County

Sinclair-Wyoming 75-A.....NW SW NW 11-26n-90w
T.D. 4,244 ft., testing.
Sinclair-Wyoming 94-A.....NW NW NE 10-29n-90w
T.D. 1,900 ft., shot at 1,760-80 ft. with 20 qt.
Farson Oil & Gas 1 Government..SE NE 18-25n-108w
Drilling 1,585 ft.
Union Gas 1 Hummer..... NW NW NE 6-17n-103w
T.D. 2,110 ft., rigging up rotary.
Gus Pongratz et al 1 Clark.....NW NE 22-19n-104w
Coring in sand at 4,914 ft., bottom Nugget water sand at 4,880 ft.
Red Desert Corp. 1 Aspden..NW SW NW 34-18n-103w
Drilling 4,523 ft., looking for top basal Nugget (Sundance) at 4,600 ft. to 4,650 ft.
Vermilion Oil 2 Government...SW SW SW 7-12n-99w
T.D. 3,535 ft., reaming to lower 8⅝-in. to bottom.

Washakie County

J. E. Longnecker 1, CSL SW NE 24-47n-90w, Sherard district, was abandoned at 91 ft.

Weston County

V. H. Connor et al have let contract to Garretson & Knisely for a test with slim-hole rotary on the Dewey structure. Location is an offset to the deep test drilled last year by Bruce C. Teeters on geology by E. W. Krampert. This test had a show of black sulfur oil below 30 gravity in the upper Sundance at 980-1,017 ft., which looked as if it would make a small commercial well, but hole was continued on down to the Minnelusa and when it backed up the oil was not recovered.

W. H. Connor 1 State.....NW SW NE 36-42n-61w
Cemented 10-in. at 40 ft. First report.

MONTANA

The Montana crude market showed a considerable improvement in August as indicated by the state Oil Conservation Board's report for that month. Production for the month increased 33,762 bbl. and storage decreased 137,289 bbl. in August as compared with July, a total gain of 171,051 bbl. Most of this increase is credited to exports to Canada which aggregated 143,809 bbl. in August as compared with only 7,987 bbl. in July. Total production, all fields, in August was 587,631 bbl. as against 553,869 bbl. in July. Storage at the beginning of August was 1,400,901 bbl. and at the end of the month 1,263,614 bbl.

Carbon County

Continental 1 Prigge.....SE SE SE 33-9s-25e
T.D. 3,562 ft., testing.

Garfield County

H. H. Schwartz, Jr., 1 Charles.....SE NW 21-15n-30e
Coring below 3,385 ft. for the Madison.

Glacier County

Cut Bank had two completions, one a dry hole and the other a gas well, and two new operations.

The most interesting of the completions was Glacier Production Co. 3 Hall, NW SE 35-36n-6w, in the northern part of the field, in the vicinity of one of the largest gas wells in the field. It had the Sunburst sand at 2,925-68 ft., and gas blew at 2,930 ft. and increased to 15,000,000 cu. ft. before it was killed with water. The sand from 2,930-68 ft. was then drilled with the well dead. The 7-in. was run and cemented at 2,985 ft., but failed to shut off the gas. A squeeze job on the 7-in. then was tried without success and the 5½-in. was run to 3,008 ft. and cemented. The cement held until the Cut Bank sand at 2,994-3,052 ft. and 3,056-58 ft. was drilled. It swabbed 19 bbl. the first 12 hours at 3,008-12 ft., but ran into water in the lower sand. The gas then broke in again and it was completed as a gas well. It is a north offset to 1 Hall, which was completed in 1935 for 312 bbl. the first 24 hours, and almost ½ mile northeast of 2 Rigney, which was completed last January for 31,000,000 cu. ft. of gas.

The other completion was R. C. Tarrant 3 Wold-fee, NE NE 13-34n-6w, which had 60 ft. of oil from the Cut Bank at 2,715-60 ft., but which failed to improve when shot and was abandoned.

A. B. Cobb 1 Tribal-187 ..... SE NW 19-32n-5w
Spudding. First report.
Glacier Prod. Co. 3 Rigney.....SW NE 2-35n-6w
Location. First report.
Texas 9 Morrison.....660 ft. S of N¼ cor. 27-35n-6w
Drilling 260 ft.
M. R. Wagner 3 Tribal-173.....SW SE SE 12-32n-6w
Spudded.
Glacier Prod. Co. 4 Neil ..... SW NE 20-33n-5w
Rig.
A. B. Cobb 1 Tribal-187.....SE NW 19-32n-5w
Location.
Kullberg 1 Tribal.....NE cor. Lot 3, 19-32n-5w
Spudded.

Texas 10 Unit 9 ..... SW SE 9-32n-5w
Drilling 1,020 ft., top Colorado 678 ft., cemented 10¾-in. at 700 ft.
Texas 5 Tweedy ..... SW NW 21-35n-6w
Drilling 2,505 ft., top Colorado 690 ft.
Montana-Dakota 1 Tribal-112 . . SW NW NE 16-35n-6w
T.D. 2,885 ft., cleaning out at 2,810 ft.
Texas 4 Schlag ..... NE SW SE 26-35n-6w
Cemented 7-in. at 2,767 ft.
Texas 10 Tribal-122 ..... CEL NW SE 6-32n-5w
Cemented 7-in. at 2,887 ft., drilling in.
A. R. Pardue 1 Tribal-181 ..... SW SE NE 19-32n-5w
Cemented 7-in. at 2,721 ft., show oil in Sunburst at 2,680-90 ft.
R. C. Jeffries 2 Clarke ..... NW SW 34-35n-6w
Cemented 7-in. at 2,969 ft., Sunburst dry at 2,910-15 ft.
Santa Rita 12 Tribal ..... SW SW 10-35n-6w
T.D. 2,491 ft., running 8⅝-in. to shut off water at 2,355-60 ft.

Stillwater County

Texas 1 Unit ..... SE NW 10-4s-19e
Drilling 6,306 ft.

Toole County

Kevin-Sunburst had one completion and two new operations.

L. J. Yealy 15 Shaw, SW NE NW 35-36n-2w, was completed at 1,603 ft., total depth, for 15 bbl. a day from the Sunburst at 1,573-1,603 ft.

Big West Oil 4 Ellingson ..... CWL SW NW 14-35n-3w
Drilling 100 ft. First report.
Welch Bros. 2 Lerum ..... SE SW NW 25-36n-2w
Spudded to 10 ft. and S.D. to complete rigging.
Casper Olen 11 Engemoen ..... NW NE SW 11-35n-2w
Spudded and S.D.
Pfabe & Engleking 13 Govt. ... CNL SE SE 19-35n-2w
Drilling 410 ft.
Vander Pas 4 Ward ..... NE NW SW 28-35n-3w
Drilling 320 ft.
A. B. Finland et al 1 Dewald . . SW NW SE 23-26n-2w
T.D. 1,135 ft., set 8¼-in.
Coolidge & Coolidge 2 State .... SE SW SE 26-36n-2w
S.D. 30 ft.
Texas 9 Swears ..... SE SW SW 9-35n-2w
Drilling 1,250 ft., set 8¼-in. at 1,250 ft.
Consolidated Gas 2 Haukland .... SE SE SE 28-33n-2w
T.D. 1,345 ft., sidetracking tools.
Prevol & Shay 1 Government ..... SW NW 15-35n-3w
T.D. 1,840 ft., dry, S.D.
H. F. Patterson 1 Government . . NE SE SE 15-35n-3w
T.D. 1,904 ft., contact dry at 1,810-15 ft., break at 1,825-30 ft., testing.
Montana Gas 1-X Nelson ..... SE NE 12-35n-1e
Drilling 1,810 ft.

NORTHWEST NEW MEXICO

McKinley County

Petroleum Products Corp. 12 Hospah, NE 1-17n-9w, was completed in the Hospah sand at 1,575 ft. as a small well, but not gaged.

Teague, Greer et al 1 Santa Fe, SE SE 33-18n-10w, Seven Lakes district, was abandoned at 1,625 ft.

Petroleum Products 13 Hospah . . CSL SE NW 1-17n-9w
Cemented casing at 1,525 ft.

Rio Arriba County

E. B. McKenna 1 Govt.-Rath unsurveyed NW 29-26n-2e
Building rig.

San Juan County

Southern Union Production Co. 1 Government, NW SW SE 13-29n-12w, Kutz Canon district, was completed in the Picture Cliff sand at 1,765 ft., total depth, for 500,000 cu. ft. of gas a day. Top at 1,740 ft.

North Louisiana-Arkansas

(Continued from Page 93)

County wildcat, has a reported slight show of oil at 3,375-80 ft., and is coring ahead.

ARKANSAS COMPLETIONS

Dorcheat—Columbia County

McAlester Fuel Oil Co. 1 K. J. Sayers . NW NE 15-18-22
264 bbl., 13/64-in. choke, T.P. and C.P. 2,700 lb., T.D. 8,920 ft.

Troy—Nevada County

Berry Asphalt Co. 4 M. Jackson .... NE NW NE 9-14-20
1,000,000 cu. ft. gas, open tubing, S.I. pressure 285 lb., T.D. 1,219 ft.

ARKANSAS DRILLING REPORTS

Arkansas County

Jay Oil Co. 1 C. P. and Bettie Trice .... NE SW 16-2s-3w
Set 15½-in. casing 200 ft., larger rig.

Clark County

W. P. Wilson 1 Hamilton-Mathews .... NW SW 32-10-20
Set 5 7/16-in. casing 1,557 ft., T.D. 1,572 ft.

Columbia County

Louark Prod. Co. 1 Longino et al ..... NW SE 10-18-10
T.D. 8,000 ft., D.S. parted, preparing to wash over and cut out fish.

Dallas County

H. H. McBride et al 1 Southern Kraft Corp. ..... SE SW 16-9-16
S.D. 1,265 ft.

Howard County

Miller & Fletcher 1 Dierks Lumber Co. SW SW 7-8s-28w
S.W. 200 ft.

Lonoke County

Lunnon Howell & Ford 1 City of Cabot ..... NE cor. Lot 1, Blk. 6, 18-4n-9w
S.D. 1,302 ft.

Miller County

John Coats 1 L. Ochsenbien ..... SE NW 19-14-27
S.D. 2,762 ft.
Love, Owens & Carter 1 Montana Realty Co. ..... N½ SW SW 10-17-28
Coring 3,444 ft.

Prairie County

Hazen Oil Co. 1 Fidelity Mutual Life Ins. Co. ..... NE NE SW 16-2n-6w
S.D. 125 ft.

Saline County

Tedford Drlg. Co. 1 Williams 31-3s-15w
Drilling 450 ft.

EAST TEXAS BORDER

The Waskom field of Harrison County was extended to the northwest with completion of the Arkansas Louisiana Gas Co. 1 Fields in the J. L. White Survey. The lower Glen Rose well made 12,500,000 cu. ft. of gas after perforating several sections between 5,934 and 6,134 ft.

EAST TEXAS BORDER COMPLETIONS

Wildcat—Cass County

Max Agress 1 Clark & Boice Lumber Co., Lot 2, C.&B. Div., B. Hawkins Sur., T.D. 3,533 ft., temporarily abandoned.
Henry A. King 1 Heilborn & Kay, S.&S.E.R.R. Sur., T.D. 4,202 ft., dry, top Nacatoch 1,261 ft., Blossom 2,665 ft., Tokio 3,183 ft., Paluxy 3,408 ft.

Waskom—Harrison County

Arkansas-Louisiana Gas 1 Fields, J. L. White Sur., 12,500,000 cu. ft., R.P. 2,240 ft., 5½-in. casing, T.D. 6,155 ft., perf. 5,934-54 ft., 5,972-82 ft., 6,050-58 ft., 6,086-6,134 ft.

Smithland—Marion County

R. S. Kirby 1 T. S. Burks, G. Coore Sur., 480 bbl., open tubing, oil sand 2,258-62 ft. and 2,276-82 ft., T.D. 2,302 ft.
H. T. Manning 1 O. Brown, L. Needham Sur., pumping 57 bbl., top sand 2,336 ft., set 7-in. casing 2,328 ft., T.D. 2,376 ft.

EAST TEXAS BORDER DRILLING REPORTS

Bowie County

J. G. Strahan (formerly Daniels & Neill) 1 Lewis Fort, L. Peters Sur., P.B. 2,320-2,007 ft. and set casing, to test upper sands, show oil.
Lee Timberlake et al 1 Smith, T. H. Hill Sur., drilling 1,040 ft.

Panola County

Holcombe & Thomason 15 Crenshaw, T. W. Cox Sur., drilling 3,314 ft. in shale, slight show oil 2,338-54 ft., sandy chalk.

Sabine County

Sterm & Womack 1 Keith, L. Grace Sur., S.D. 6,173 ft.

Shelby County

Paul Pewitt et al 1 J. S. Swan, Ann Gray Sur., T.D. 5,105 ft. in shale, perf. casing 5,000-10 ft., tested gas and salt water, S.I. C.P. 600 lb., preparing to P.B.
Superior Oil Co. 5 Pickering, D. Gonzales Sur., drilling 145 ft. in shale.

1st

First National, of Course!

For OIL FINANCING

IN EVERY DIVISION

OF THE PETROLEUM INDUSTRY

The FIRST NATIONAL BANK and Trust Company of Tulsa

DIRECTORS

R. F. BARNETT, Vice President
J. P. BYRD, Jr., Vice President
F. L. DUNN, Executive Vice Pres.
A. L. FARMER, Real Estate
R. N. GREER, Oil Producer
ELMER HALE, Pres., Hale-Halsell Co.
C. A. KING, Vice President
A. I. LEVORSEN, Geologist
JOHN D. MAYO, Mayo's, Inc.
R. OTIS McCLINTOCK, President
F. B. PARRIOTT, Oil Producer
W. G. SKELLY, Pres., Skelly Oil Co.
R. ELMO THOMPSON, Sunray Oil Corp.
GARY Y. VANDEVER, Vandevers'
W. K. WARREN, Pres. Warren Pet. Corp.

1895 ★ ★ 1940

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

TWO-IN-ONE

Read

THIS STORY ABOUT

DOUBLE-ACTION "ENGINEERED SETS"

MADE for heavy duty, exceptional wear, these "Engineered" Rotary Brake Lining Sets by Emsco, provide smooth braking because they are "engineered" right—according to the varying pressures on the band. Users of these linings get double-duty wear. You may be sure that Emsco is always easy on your drums.

The combination of two types of lining on one band is an exclusive, patented Emsco feature.

In the set are Emsco Rotary Woven and Emsco Rotary Moulded Linings, which are fitted at the points of the drum according to the braking pressure. The result is balanced braking from this correct combination of two great linings. Order Emsco "Engineered" now, and try 'em out to be convinced.

For the best in Woven or the best in Moulded Linings, or a combination of the two, Buy Emsco

EMSCO "Engineered"
(PATENTED)
Rotary Brake Lining Sets
EMSCO ASBESTOS CO. • DOWNEY, CALIF.

"PRE-SOLD"
Wall
MANILA
OIL FIELD
CORDAGE
stands the gaff!
WALL WORKED AND ROPED
Complete stocks are carried in both mid-continent and gulf coast fields.
WALL
Wall Rope Works, Inc.
2000 Nance Street,
Houston, Texas
Telephone: Cap. 0244

HERE'S HOW TO SAVE
on Piston Replacements

MacClatchie Wearever Pump Pistons installed in your slush pumps cut maintenance costs four ways—

1 **Lower Operating Costs.** The rubbers are replaceable, and cost only a fraction the price of a whole piston, thus **guaranteeing** you extra savings with MacClatchie Wearevers.

2 **Longer Service.** Wearever Pistons last **five times** as long as others because ports in the fluid end allow fluid to expand the rubbers as much as 1½" from the end, giving five times the ordinary wearing surface!

3 **Greater Operating Efficiency.** Wearever Pistons are the **only** pistons which can be made as efficient as new by merely replacing the rubbers—a job done in a few minutes **right at the rig** by any member of the crew!

4 **Guaranteed Performance.** Pumps damaged by breakage of Wearever Piston Rods, when equipped with Wearever Pistons, **will be repaired free of charge, and a new rod given for the one broken!**

Write for Full Details!

MacCLATCHIE MANUFACTURING CO.
COMPTON, CALIFORNIA

Among the Drilling

BIG WEST Drilling Co., Dallas, Tex., is drilling the Caruthers, Tr., No. 1 Simmons unit, a deep well in Claiborne Parish, North Louisiana. The test has encountered oil shows in the top of the Travis Peak formation and is now in the Cotton Valley formation.

SUPERIOR Drilling Co., Houston, Tex., completed another producer in the Withers field, Wharton County, Texas, for Pan American Production Co., and the rig is being moved to another location for the same company. Another rotary is running in the same field for Texas Co.

HENSHAW BROTHERS opened a new oil field 3 miles southeast of the town of Orange Grove, Jim Wells County, Texas, with completion of their No. 1 Grossman, completed from the Vicksburg sand at approximately 5,100 ft. Additional drilling is expected to be started immediately.

A. O. OLSON, Homer, La., drilling contractor, is deepening the E. T. Oakes and others No. 1 Whitman, Lisbon test, to the Travis Peak formation to check oil shows found at that depth elsewhere in the field.

O. W. DYER, Houston, Tex., is testing Atlantic's No. 1 W. E. Conwell, an outpost located in the Thomaston field, De Witt County, Texas, and is drilling ahead in a deep test located in the McCampbell field, Aransas County, Texas, for the same company.

OSAGE Drilling Co. has started a new test in the semiwildcat area of southeastern Cochran County, West Texas, and east of the Duggan field proper. The new operation is No. 1 Smith, located 510 ft. from the south and east lines of Labor 16, League 56, Oldham County School Lands. It is between the field proper and the east-extension area which has linked the field with the Slaughter field to the east and in Hockley County. The test is on acreage farmed out from the Cascade Petroleum Co. of Fort Worth.

HARRY L. EDWARDS Drilling Co., Houston, Tex., received contract for a second well from W. P. Luse to be drilled on the east flank of the Esperson dome, Liberty County, Texas. A new operation is being started on the Anse La Butte dome, St. Martin Parish, coastal Louisiana, for Stanolind Oil & Gas Co. Two other operations are reported in Harris and Aransas counties, Texas, for Gulfboard Oil Corp., and Cities Service Oil Co.

•

COASTAL Drilling Co., Houston, Tex., has moved a rotary to Colorado County, Texas, where drilling was scheduled to be started on Moore & Ahern's No. 1 Erwin Kimbler, a projected Cockfield test located in the C. Rothemero Survey, southeast of the town of New Ulm. Coastal Drilling Co.'s No. 1 Gibbs, a wildcat located in San Jacinto County, Texas, was abandoned as a dry hole.

TAUBERT, McKEE & SIEMONEIT Drilling Co., Fort Worth, Tex., is drilling below 3,100 ft. on a 4,250-ft. contract for Union Producing Co., a mile west of production in the Sewell field of Young County, North Texas. The drilling firm, associated with several other operators in the area, has been instrumental in developing this and nearby production in Young County during the past 2 years.

CROSBY Drilling Co., Houston, Tex., is preparing to spud M. H. McMurray and others' No. 1-A Allen, a projected Wilcox test located east of the town of Vienna in Lavaca County, Texas. In the meantime, Helmerich & Payne's No. 1 Herman, located in the Sugar Valley area, Matagorda County, Texas, is coring below 7,700 ft., while in Jackson County, Texas, drilling continues at the company's No. 1 Four Way ranch.

BALDWIN-REED Drilling Co., Wichita Falls, Tex., has staked location for a new test in the recently opened Allee field in Foard County, North Texas. It will be No. 1 M. E. Gamble, 660 ft. from the north line and 330 ft. from the west line of an 80-acre tract in Section 314, Block A, H.&T.C. Sur. The field was discovered only a few weeks ago by Thomason Oil & Royalties Co.'s No. 1 Gamble.

ROWAN Drilling Co., Houston, Tex., is preparing to complete its No. 1 Bradbury, an outpost test located in the Rowan field, Brazoria County, Texas, while sand and shale showing oil was cored in the discovery pay at Stanolind Oil & Gas Co.'s No. 1 Hodnett. Another rig is running at the Pine Island prospect, Jefferson County, Texas, for Rowan & Nichols' No. 1 Melancon, a projected 7,500-ft. test.

N. C. MILLER and George Jeanis, contractors of Abilene, Tex., have contracted with Campbell and asso-

Millings?

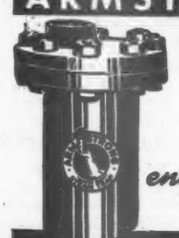
To successfully mill up a fish is only part of the job. An accumulation of millings on bottom can very easily ball up the works. The surest and quickest way to get rid of bothersome millings is to use the

CAVINS
Automatic Hydraulic
SUCTION BAILER

Phone your nearest office for details

The CAVINS Company
2853 Cherry Ave. Long Beach, Calif.
Rental and Service Agencies:
Bakersfield, Taft, Ventura, Odessa, Corpus Christi, Houston, Kilgore, Lake Charles, Seminole, Wichita, Hoisington, Lance Creek, Denver.

ARMSTRONG
STEAM
TRAPS
make drilling engines work better!



ARMSTRONG MACHINE WORKS
868 Maple Street Three Rivers, Michigan

Standco
NO-SMOKE
USE STANDCO BRAKE LINING
—the drillers' best friend—drills more deep wells than all other linings combined. It makes an easy brake and feeds off evenly while drilling. See page 2304, Composite Catalog.
STANDCO BRAKE LINING CO.
HOUSTON, TEXAS

Contractors

ciates of Fort Worth for a 1,000-ft. wildcat in McLennan County, central Texas. It is No. 1 Sallie Stewart, in the Samuel Burton Survey, adjoining the townsite of Elm Mott. It has been spudded and is drilling below 280 ft. The test is on a 3,000-acre block about 5 miles north of Waco.

HOGAN BROTHERS, drilling contractors of Mount Pleasant, Mich., has been awarded contract for drilling two wells in the Overisel field of Allegan County, Michigan, by W. L. McClanahan. The two wells are the No. 4 Hoffman in NE SE SE Section 16-4n-14w and No. 5 in SE SE SE Section 16-4n-14w.

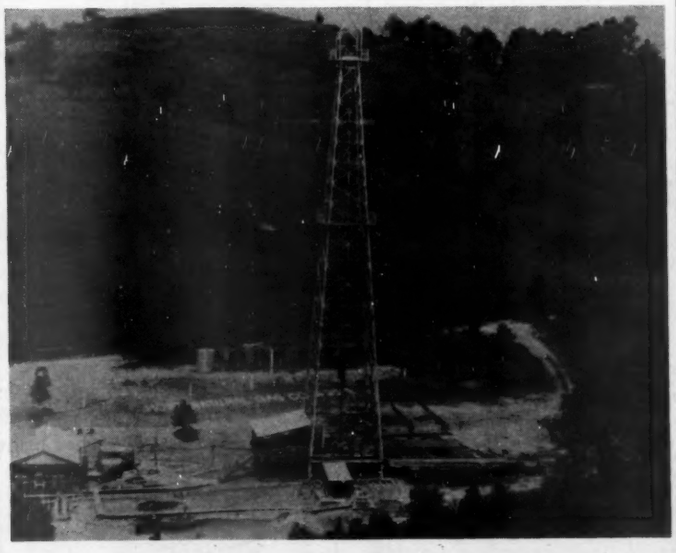
A. Z. SKEETER, contractor of Kilgore, Tex., has signed contract with L. A. Rankin of Tyler for the deepening to 6,000 ft. of the old Vaughn No. 1 Chapman, wildcat failure in Hopkins County, eastern Texas. No. 1 Chapman is located in the Francis Hopkins Survey, in the Tira community, and was quit this past spring at a depth of 4,064 ft. It is 11 miles west of the Sulfur Bluff Paluxy sand field and is bottomed in the Paluxy sand. The new contract depth is expected to test the Glen Rose, Pettit, and the Travis Peak.

WESTBROOK Drilling & Production Co., independent Michigan operator, was scheduled to drill out of the Traverse lime at the week end at its No. 1 DeMoss, a wildcat in NW SE NW Section 9-1s-15w, Columbia Township, Van Buren County, Michigan. The test reportedly topped the Traverse at 1,155 ft., or about 20 ft. higher than correlative tests in the surrounding area. The test is located south and east of the town of Grand Junction.

MID-PLAINS Drilling Co. and Premier Drilling Co., recently organized contracting firms, have opened offices in Oklahoma City. The Mid-Plains company was organized by L. H. Gaddy, Dallas, and W. T. Daniel, Oklahoma City. Organizers of the Premier company are Al H. Thornton, Harold Westcott and W. L. Murphy, all of Oklahoma City.

BIG CHIEF Drilling Co. and Kenneth Ellison of Oklahoma City are starting a test on the southeast flank of the old Lovell pool, Logan County, Oklahoma, as a result of a Layton sand strike by Danciger Refineries, Inc. The Big Chief test is in Section 27-18-4w, north of the Danciger strike.

WARREN & BRADSHAW Drilling Co., Tulsa, has started a test in Section 20-19-2e, West Stillwater pool, Payne County, Oklahoma, that will depend upon position of structure for its depth. If it runs sufficiently high on structure, it will be drilled to Wilcox sand, but if it checks low hole will be bottomed in Hunton lime.



Falcon Seaboard Drilling Co.'s rig which is 7,400 ft. deep on a wildcat gas test for the Hope Natural Gas Co., of Clarksburg, W. Va. The well is located some 12 miles south of Clarksburg near the town of Lost Creek. The main horizon to be tested is the Oriskany, to be found at approximately 7,500 ft. This is the first rotary rig to drill a well in West Virginia and it is a mechanical-electric rig

GET ACCURATE RESULTS
Quickly . . Easily . . with
CURTIN CENTRIFUGES

No. 3480 100 c.c. machine. Cranks and heads interchangeable with 15 c.c. machines.

You can maintain your required speed for the period of the test with much less effort. Curtin Centrifuges, proven world-wide, are heavy duty, rigidly constructed, and extremely simple in design. Illustrated bulletin, giving full details, available upon request.

W·H·CURTIN & CO. Inc.
HOUSTON U.S.A. TEXAS

GATKE
DEEPWELL WOVEN
BRAKE LINING
The drillers best friend. Stands the gaff. Sure holding action. Even feed-off. Prolongs flange life. Ask GATKE Field Men.
GATKE CORPORATION
228 N. LaSalle St., CHICAGO

ALWAYS
RENEW YOUR
SUBSCRIPTION
PROMPTLY

CHIKSAN
All-Steel
ROTARY
HOSE

Unlimited flexibility assured by 17 swivels, turning smoothly on double rows of hardened steel balls in flame-hardened races. All-steel construction does not deteriorate with age or climate. 3", 4" and 5" sizes. 45' to 60' lengths.

Distributed in Texas, Louisiana, Arkansas and New Mexico by GULF ENGINEERS, INC.
Distributed in Oklahoma and Kansas by WELL EQUIPMENT MFG. CO.

CHIKSAN TOOL COMPANY
BREA, CALIFORNIA
BALL BEARING SWING JOINTS for ALL PURPOSES
ALL-STEEL ROTARY HOSE
CIRCULATING HEADS • MUD GUNS
THREE-WAY DISC BIT
STANDARD AND HEAVY DUTY REAMERS

The
H. C. SMITH
T-39
wire line
CORE DRILL

HARD FORMATION CUTTER HEAD

H. C. SMITH T-39 WIRE LINE CORE DRILL

SOFT FORMATION CUTTER HEAD

Export Representative:
VAL R. WITTICH
30 Rockefeller Plaza, New York City

H C Smith Oil Tool Co.
GENERAL OFFICES AND PLANT
P. O. Box 431, Compton, Calif.

SOUTHWEST TEXAS

By
F. L. SINGLETON

Two New Fields in Frio-Vicksburg Trend

CORPUS CHRISTI, Tex., Oct. 14.—Two more fields were added to the Frio-Vicksburg trend in Jim Wells and Starr counties while oil production was opened on the southeast flank of the Agua Dulce gas field, Nueces County. Other developments of interest in the Southwest Texas district included a major extension to the Glen field, Webb County, and the announcement of several interesting wildcat locations.

Henshaw Brothers 1 Grossman, approximately 3 miles southeast of the Orange Grove townsite, Jim Wells County, opened another producing area flanking the Wade City-Orange Grove fields as it flowed at the estimated rate of 6 bbl. of oil per hour through a ⅛-in. choke while testing through perforated casing at approximately 5,139-45 ft. Tubing pressure was 825 lb. and shut-in casing pressure 775 lb. There was no showing of salt water. This is the second producing area within recent weeks to be marked up for the Wade-City Orange Grove fields, and while the production formations of each area are logged at approximately the same depth, production is believed to be separated by faulted conditions.

Locations for three more wildcats were announced for the county. Three miles northwest of the town of Bentonville in the Presenos De Abajo grant, Daubert and W. C. McBride have derrick up for 1 C. W. True, while 3 miles east of Orange Grove, H. R. Smith and others staked location for 1 William Koehler in the Casa Blanca grant. Southeast of the town of Alice, and located in the Magnolia Fig and Orange Colony subdivision, Seaboard Oil Co. is preparing to spud 1 Archie Cohn.

The Gallagher field, Jim Wells County, was defined with the abandonment of M. M. Miller & Son 1 Machen at a total depth of 6,720 ft. Location is about 900 ft. northwest of 4 Gallagher.

Starr County Activity

Sun 1 Saenz, approximately 2 miles northeast of the North Rincon field, Starr County, which has been in the process of completion for several weeks, was officially completed the past week for an initial production of 70.7 bbl. of pipe-line oil per day, flowing through a 7/64-in. choke, under a tubing pressure of 1,250 lb. Shut-in casing pressure was 1,825 lb. The well was drilled to a total depth of 5,590 ft., and completion was made by perforating casing at 5,478-81 ft. The well is in the Santos Bazan Survey on strike with other Frio-Vicksburg fields such as the Kelsey, Sun, and Rincon fields in Jim Hogg, Brooks, and Starr counties.

In the same county and located south of the discovery well of the North Rincon field, Harvey et al 1 Davenport-State is bottomed at 5,210 ft., and 5½-in. casing was cemented at 5,165 ft., preparatory to testing. The limits of the field were defined to the east with the abandonment of Texas 1 Davenport-State at a total depth of 5,523 ft., which apparently eliminates the possibility of this field being linked with that of the Saenz producer to the northeast.

Agua Dulce Oil Discovery

An important discovery was recorded in Nueces County with the completion of Richardson Petroleum Co. 2 McCoy which opened crude production on the southeast flank of the Agua Dulce gas field. The well was drilled to a total depth of 7,050 ft., and after recovering oil in three separate sand sections by drill-stem testing, final completion was made through perforated casing at 6,814-20 ft. On a 24-hour gage, flowing through a ½-in. choke, the well flowed 190 bbl. of oil with 1,375 lb. working pressure on the tubing and 1,925 lb. on the casing. Gravity of the oil tested 39°. This is the first important crude production to be developed on the structure, and interest in the area is now centered on H. H. Howell et al 1 Schulze located on the east flank which is in the process of testing. This well was drilled to a total depth of 7,232 ft., and 5½-in. casing was cemented at 6,650 ft., after an electrical survey and side-wall cores showed favorable indications at 6,577-98 ft. A drill-stem test through perforated casing at 6,557-81 ft., recovered salt water with no show of oil or gas. The operators have cemented off the perforations, and are preparing to retest in the same section.

Since the development of the oil production on the east flank of the Stratton field located to the southeast, considerable attention has been attracted to this area, and with the completion of Richardson producer wildcatting around the flanks of these gas structures has been greatly encouraged.

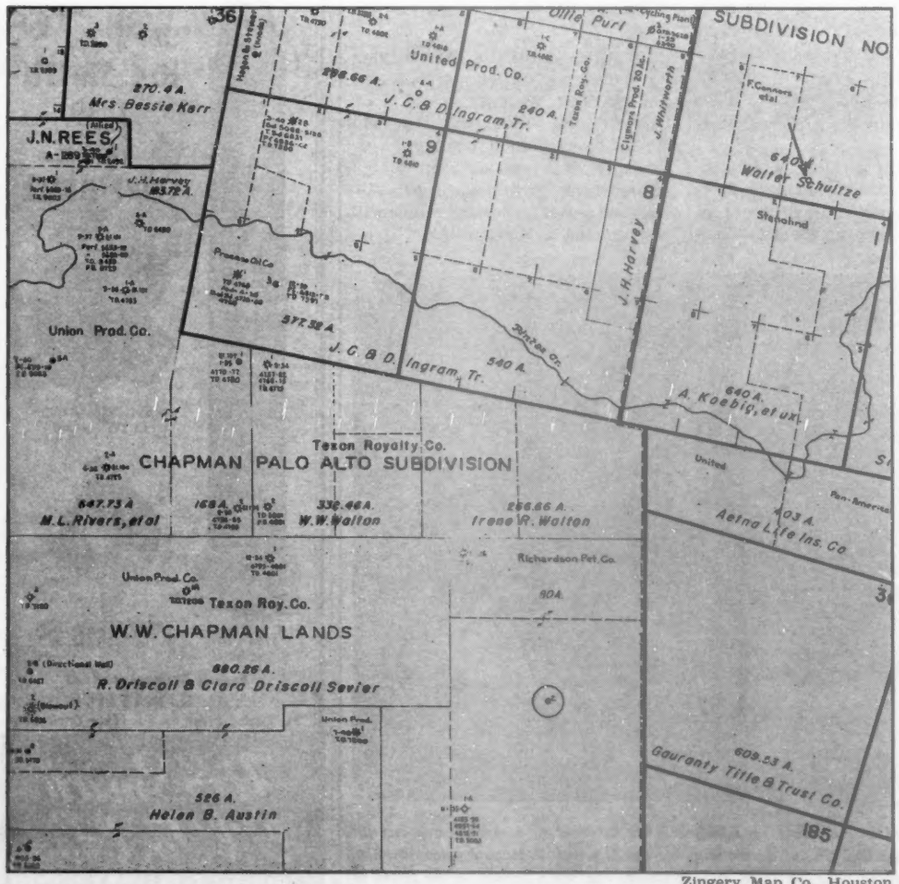
East Flour Bluff Field

In the East Flour Bluff field, Nueces County, Humble Oil & Refining Co. was preparing to complete another producer as casing was cemented in 5-D State, after sand and shale showing oil was cored at intervals from 6,777-91 ft., the total depth.

Atlantic 1 W. E. Conwell, 1 mile northeast of the discovery well of the Thomaston field, De Witt County, was in the final stagegs of completion. Drill-stem testing through perforated casing at 9,795-9,820 ft., and at 9,110-40 ft., which is considerable deeper than the discovery horizons, recovered mud, and gas-cut mud with brackish water, and the hole was plugged back and the well is being tested in the Wilcox sand at 8,725-97 ft. Should this test fail, the next test is expected to be made in the discovery pay at 7,855-85 ft.

A shallow gas field was opened 1 mile southeast of the Charmousca field, Duval County, with the completion of Magnolia 1 Duval County Ranch Co., which was completed through perforated casing at 1,003-06 ft., for an initial production of 2,060,000 cu. ft. of gas per day through open tubing. Location is in the G.C.&S.F. Survey 289. Location for a Pettus sand test was staked about 9 miles northwest of the Fitzsimmons field by J. B. Blanchard who is preparing to spud 2 Lowe in the J. G. Lowe Survey. Four miles southwest of Tarancahuas field, Robert Coker staked location for a 3,500-ft. test on the Smith-Corkill lease in the E. Alanis Survey.

The producing limits of the Glen field, Webb County, were extended about 1 mile south into Zapata County with the completion of Jay Simmons et al 1 Yeager-Stroman which is reported to have been completed for an initial production of 50 bbl. of oil per hour through open tubing. Sand showing oil was cored at 2,172-78 ft., and the well was completed with 5½-in. casing cemented at 2,172 ft. Locations for additional wells offsetting the producer were made by the same operator and Transwestern Oil Co.



Zingery Map Co., Houston

Richardson Petroleum Co. 2 McCoy (indicated by circle) which opens important crude production on southeast flank of Agua Dulce gas field, Nueces County, and H. H. Howell 1 Schultze, in the process of completion

SOUTHWEST TEXAS COMPLETIONS
CORPUS CHRISTI DISTRICT

Jim Wells County

Orange Grove field: H. H. Howell 1 Wolters, 226 bbl., ½-in. choke, perf. casing 5,105-12 ft., T.D. 5,249 ft.

Nueces County

South Clara Driscoll field: Wellington 7 Richardson, 85 bbl., 8 hrs., ¼-in. choke, perf. casing 5,066-78 ft., T.D. 5,740 ft.

Stratton field: Gulf Plains Corp. 1 W. S. Sellers, 26 bbl., ½-in. choke, perf. casing 6,365-92 ft., T.D. 6,586 ft.

East White Point field: Sinclair Prairie 1-975 State.

(Continued on Page 113)

New Greta Sand Field in Sight Near Ganado

By F. L. SINGLETON

HOUSTON, Tex., Oct. 14.—Pure Oil Co. 1 Spacek, just southwest of the town of Ganado, Jackson County, showed promise of opening a new oil field for the Texas Gulf Coast as the well flowed 20 bbl. of fluid per hour of which 50 per cent was salt water and the balance pipe-line oil. The well was tested for 1 hour and 35 minutes, and was gaged through a ¼-in. choke. Working pressure built up to 400 lb. Drilled to a total depth of 6,600 ft. the hole was plugged back to 5,453 ft. and the well was tested through perforated casing at 5,471-94 ft. The perforations were cemented off, and another test is scheduled to be made. Additional sands, logged by an electrical survey and confirmed by side-wall cores, were reported at 4,900 ft., 5,000 ft. and 5,200 ft., and these will be tested should the well fail to produce commercially from the 5,400-ft. horizon. The sand section is believed to be the Greta sand in the Frio formation which produces at the West Ranch and Lolita fields located in the same county.

In the Rowan field, Brazoria County, Rowan & Nichols have cemented casing in 1 E. L. Bradbury, located about 2,000 ft. east of production. The hole is bottomed at 9,177 ft., and the well is scheduled to be completed in the 8,500-ft. discovery pay which was topped at 8,554 ft. Sand with a gas and distillate odor with a taste of brackish water was logged in the 9,100-ft. zone. Offsetting the discovery well to the southeast, Stanolind 1 Hodnett is coring in sand and shale below 8,627 ft. Sand and shale showing oil was cored in the discovery pay at intervals from 8,508-56 ft.

In Galveston Bay, offshore from Chambers County and approximately 1,134 ft. southeast of the discovery well of the Red Fish Reef field, Humble 2-A State flowed 228 bbl. of distillate per day through a ¼-in. choke. Tubing pressure was 3,150 lb. and casing pressure 3,400 lb. Salt water was recovered on a drill-stem test through perforated casing at 9,762-72 ft. The hole was plugged back and the well was completed through perforated casing at 9,441-55 ft., which is a new producing horizon in the basal Frio formation. In the same area Humble 3-A-248 State is drilling in shale below 8,842 ft. Sand and shale with a gas odor was logged at 8,598-8,608 ft. and at 8,700-8,800 ft. Northeast of the discovery well location was made by Gulf Oil Corp. for 1-R-224 State, and a rig is scheduled to be moved to the location within a few weeks.

In the Mount Houston field, Harris County, H. C. Cockburn was preparing to complete 2 G. W. Burkitt, a west offset to the discovery well. Sand showing oil was topped in the discovery pay at 4,051 ft., and 5½-in. casing was cemented at 4,121 ft., the total depth. The discovery pay was topped about level with the discovery well.

Wildcat Locations

Locations for three interesting wildcats were announced for the district. East of Vienna, Lavaca County, M. H. McMurray et al staked location for 1 A. C. Allen in the M. Muldoon Survey, a projected Wilcox test. Southeast of the Pledger gas field, Brazoria County, Skelly Oil Co. staked location for 1 R. D. MacDonald, a 9,500-ft. test located in the Joseph White Survey. Protection in the area is held by several major and independent companies. In Colorado County and southeast of New Ulm, Moore & Ahern are preparing to spud 1 Erwin Kimbler, a Cockfield test located in the C. Rothemero Survey.

Flank production on the southeast side of the Esperson field, Liberty County, was extended northward with the completion of W. P. Luse 1 Hlavaty which flowed 655 bbl. per day on a ¼-in. choke from sand topped at 6,847 ft. Total depth is 6,962 ft. Location in the F. M. Gardner Survey, north of the deep flank production, was opened by General Crude Oil Co.

Drilling was started in the Anahuac field, Chambers County, on Humble 1 Mauboules, a semiwildcat located 1 mile south of production in the H.&T.C. Survey. While this field is defined in many directions, additional production was opened during the past year by drilling of faulted areas flanking the east side of the field.

In San Jacinto County and located in the Shepherd area, Harrison & Abercromble continue to test 1 Sun Oil Co. and the well is reported to have flowed an estimated 70 bbl. of distillate per day through a series of chokes. The well was completed in the Wilcox sand at 8,215-77 ft. several weeks ago, but due to high gas-oil ratio, the well has not been officially completed.

TEXAS GULF COAST COMPLETIONS

Brazoria County

Danbury field: Humble 4 Bassett Blakely, 1,200,000 cu. ft. gas, perf. casing 4,465-70 ft., T.D. 6,634 ft.
West Columbia field: Hogg Oil Co. 1-14 Hogg, 425 bbl., ¼-in. choke, top sand 5,354 ft., T.D. 5,376 ft.

Chambers County

Anahuac field: Humble 26 Clark, 696 bbl., ¼-in. choke, T.D. 7,080 ft.

Fort Bend County

Thompson field: Gulf 4 Scanlan, 851 bbl., ¼-in. choke, top sand 7,857 ft., T.D. 7,871 ft.
H. M. Naylor 6 Musselman, 178 bbl., ⅛-in. choke, sand 7,832-85 ft., T.D. 7,895 ft.

Galveston County

Caplen field: Sun 6 Zinn-Forman, 146 bbl., ⅛-in. choke, perf. casing 7,193-7,203 ft., T.D. 7,625 ft.
Wildcat: Texas 1-237 State, dry, T.D. 8,175 ft.

Harris County

Clear Lake field: Humble 56-C West, gas well, T.D. 5,868 ft.
Fairbanks field: Amerada 27 Foley, 136 bbl., ¼-in. choke, perf. casing 6,830½-38½ ft., T.D. 6,840 ft.
Pierce Junction field: Rio Bravo 15-B Settegast, 363 bbl., ¼-in. choke, top sand 3,342 ft., T.D. 3,374 ft.

API SPECIAL TULSA TO CHICAGO

FRISCO-ALTON

Schedule of the Special Train

Lv. Tulsa.....5:30 PM, Sunday, Nov. 10
Ar. Chicago (Union Sta) 8:00 AM, Monday Nov. 11
In addition to drawing-room and compartment, there will be double bedroom sleeping cars, deluxe lounge and dining cars—completely air-conditioned.

ROUND TRIP FARE . . . $31.80

Lower berth in each direction—$5.80

The Frisco-Alton Lines have reserved a number of rooms at the Stevens Hotel, and are prepared to assign hotel accommodations at the time transportation arrangements are made. On arrival at Convention headquarters in the Stevens Hotel, room keys will be ready for delivery without the usual delay.

FRISCO LINES
ST. LOUIS SAN FRANCISCO RY.

For further information, sleeping car and hotel reservations,
PHONE 3-3151
FRISCO TRAVEL BUREAU
Philcade Bldg., Tulsa, Okla

THE ALTON RAILROAD COMPANY
CHICAGO TERMINAL
"The ONLY WAY"
KANSAS CITY

P. F. ATKINSON
Division Passenger Agent

L. A. DAVIS
District Passenger Agent

J. W. MAHANAY, Traffic Manager, Frisco Lines

Earns its cost each trip—
and then some!

PATTERSON-BALLAGH PIPE WIPER

A Texas operator, who uses chemical mud, reports he is saving several times the cost of his *Patterson-Ballagh Pipe Wiper* each trip. Drilling formerly required 5 gallons of water per minute, coming out of hole, which took 6 hours. Two sacks of mud per barrel were needed to keep the proper consistency. A total of 86 sacks of mud was used to bring up the 43 barrels of water used. This figured about $430.00 saved every two days, by using the Pipe Wiper. In addition, the mud did not channel, blowout hazard was reduced and less time required for circulation after coming out of the hole. You save real money by using one of these Pipe Wipers.

PATTERSON-BALLAGH CORPORATION
LOS ANGELES HOUSTON NEW YORK CITY

Jefferson County

La Belle field: Sun 2 Foltz, dry, T.D. 7,450 ft.
Fannett field: Gulf 10-A Bordages, 806 bbl., ¼-in. choke, top sand 8,305 ft., T.D. 8,315 ft.
Lovells Lake field: Humble 15 Jefferson Land Co., 157 bbl., ⅛-in. choke, top sand 7,776 ft., T.D. 7,778 ft.

Jackson County

Lolita field: Humble 1-C L. Ranch, 20 bbl. in 3 hr., ⅛-in. choke, T.D. 5,943 ft.
Magnolia 2 Mitchell, 96 bbl. in 12 hr., ⅛-in. choke, T.D. 5,931 ft.
Tide Water 2 L. Ranch Co., 30 bbl. in 3 hr., 5/32-in. choke, perf. casing 5,944-48 ft., T.D. 5,949 ft.
Texana field: R. H. Hawn 1 Lawrence, dry, T.D. 6,708 ft.
West Ranch field: Darby 3 Turner, 317 bbl., ¼-in. choke, sand 5,753-58 ft., T.D.
Magnolia 1-A 104 West Ranch, 197 bbl. in 8 hr., ¼-in. choke, perf. casing 5,116-24 ft., T.D. 5,126 ft.

Liberty County

Hull field: South Oil Corp. 1 Piveto, 157 bbl., ⅛-in. choke, top sand 3,979 ft., T.D. 4,512 ft.
Esperson field: W. P. Luse 1 Hlavaty, 655 bbl., ¼-in. choke, top sand 6,847 ft., T.D. 6,962 ft.

San Jacinto County

Wildcat: Coastal Drilling Co. 1 Gibbs Brothers, dry, T.D. 5,510 ft.

Wharton County

Hilje field: W. V. Bowles 1 Koenig, 126 bbl., ⅛-in. choke, T.D. 5,244 ft.
Magnet field: Humble 23 Cockburn, 389 bbl., ¼-in. choke, top sand 5,530 ft., T.D. 5,542 ft.
Pan American 1 Halamicek, 115 bbl., 8/64-in. choke, top sand 5,538 ft., T.D. 5,542 ft.
Texas 60-B Pierce, 125 bbl., 10/64-in. choke, perf. casing 5,538½-40½ ft., T.D. 5,544 ft.

TEXAS GULF COAST DRILLING REPORT

Brazoria County

Humble 1 Hubbard, N outpost Rowan field, William Harris Sur., drilling shale 2,216 ft.
Phillips 1 Houston Farms Dev. Co., Chocolate Bayou field, drilling shale 4,560 ft.
Phillips 1 Triangle Dev. Co., Chocolate Bayou field, drilling shale 6,300 ft.

Chambers County

Humble 3-A-248 State, Galveston Bay, Red Fish Reef, drilling shale 8,842 ft.
Humble 6-B-300 State, Red Fish Reef, Galveston Bay, drilling shale 3,023 ft.
Humble 2-C-46 State, Fishers Reef prospect, Galveston Bay, drilling shale 3,520 ft.
Shell 1-199 State, Galveston Bay, drilling shale 7,626 ft.

Colorado County

W. R. Davis 1 Brownson, E. S. Wooley Sur., drilling shale 6,873 ft.

Fort Bend County

Titanic and Crown Central 1 Mazola, N flank test, Orchard dome, drilling shale 8,183 ft.

Galveston County

Stanolind 1 A. K. Lobit, Alta Loma field, drilling shale and lime 7,366 ft.

Harris County

Joyce Richardson et al 1 Baskins, Ogburn field, C. Ogburn Sur., coring 6,400 ft.

Jefferson County

British American 1-72 State, Gulf of Mexico, T.D. 7,600 ft., prepare to sidetrack at 6,024 ft.

Matagorda County

Helmerich & Payne 1 Herman, Sugar Valley prospect, coring shale 7,743 ft.
Ohio 1 Blackburn, Sugar Valley prospect, drilling shale 6,423 ft.

Orange County

Dick Schwab 1 Stark & Brown, T.&N.O. Sur., Sec. 23, drilling shale 6,285 ft.

Michigan Fields

(Continued from Page 100)

Arenac County

Adams Township: Don Rayburn 1 Kerr, SW NE NE 22-19n-3e, 1,680 bbl., acid, T.D. 2,880 ft.
Rayburn 1 Stone, SW NW NE Sec. 23, dry, T.D. 3,014 ft.
Clayton Township: W. E. Ross 1 Peavy, C S½ SW SE 4-20n-4e, 1,562,000 cu. ft. gas, T.D. 1,116 ft.

Bay County

Monitor Township: L. C. MacGregor, SW SW NE 2-14n-4e, 130 bbl., acid, T.D. 2,850 ft.

Clare County

Winterfield Township: Sun Oil Co, A-1 State, C N½ NE SE 35-20n-6w, 100 bbl., natural, T.D. 3,797 ft.
Taggart Brothers 1 Richardson, C NW Sec. 28, 3,545,000 cu. ft. gas, T.D. 1,336 ft.

Isabella County

Wise Township: Cities Service Oil Co. B-1 Community, C SE 20-16n-3w, dry, T.D. 1,283 ft.

Kent County

Walker Township: Smith Petroleum Co. et al 3 Molloy, SW SE SW 28-7n-12w, 70 bbl., acid, T.D. 1,930 ft.

Midland County

Porter Township: Pure Oil Co. 34 Narmore, NE SE NW 15-13n-1w, 300 bbl., acid, T.D. 3,403 ft.

Oakland County

Lyon Township: J. V. Wicklund Development Co. 1 Smith, SW SE SE 21-1n-7e, dry, T D. 3,610 ft.

Osceola County

Marion Township: Taggart Brothers 46 Reber-Miller, C SE 25-20n-7w, 17,100,000 cu. ft. gas, T.D. 1,372 ft.

Ottawa County

Tallmadge Township: John C. Newell 2 Masterson, NW SW SE 23-7n-13w, 100 bbl., acid, T.D. 1,874 ft.

St. Clair County

Port Huron Township: Bach & Creech 1 Thompson, SE NW SW 5-6n-17e, dry, T.D. 660 ft.

Van Buren County

Bloomingdale Township: Borden Oil & Gas Co. 1 Stewart, SE NW NE 7-1s-14w, dry, T.D. 1,313 ft.
Fisher & McCall Oil & Gas Co. 1 Nelson, NW NE SW Sec. 7, dry, T.D. 1,210 ft.

Louisiana Gulf Coast

(Continued from Page 101)

covery, T.D. 9,050 ft., 7-in. casing 8,985 ft.

St. Martin Parish

Superior 1 E. C. Stuart, Sec. 28, salt dome, drilling shale 5,724 ft.
Shell 2 Iberville Land Co., Happytown field, drilling shale 10,246 ft.

St. Mary Parish

E. G. Bateman et al 1 W. P. Foster, 38-15s-9e, drilling shale 9,430 ft.

Vermilion Parish

Union Oil Co. 4 Louisiana Land & Fur Co., Schooner Bayou field, drilling shale 4,543 ft.

Shallow West Texas Oil for Road Surfaces

Several months ago H. L. Cain completed an exceptionally shallow discovery well in Pecos County. The well was No. 1 Lehman, NE cor. NW SW Section 107, Block 8, H.&G.N. Survey, about 3 miles southwest of the Pecos Valley field. From the shallow depth of 53 to 59 ft. the well pumped 10 bbl. of 17-gravity oil.

Some speculation was immediately started as to the commercial uses of this low-gravity crude. The speculation resulted in a contract between the operators in the shallow area and the highway department of the vicinity and development is now under way to exploit the field for road-surfacing purposes. No. 1 Lehman, NE cor. NW NW Section 107, made 17 bbl. of oil, bailing, after a 7-qt. shot from 43-59 ft. The south offset to No. 1, 2 Lehman, made 11 bbl., pumping, from 41-53 ft. No. 3 made 10 bbl. from 42-53 ft.

Wells in this area are drilled in a day for a cost much less than that of just rigging up an average depth test.

To prevent or stop pipe joint leaks

on threaded or flanged joints

When leaks occur at screw-thread pipe joints, reassembly with Smooth-On No. 3 will assure a lasting seal *even if the threads are worn or damaged.*

On gasketed and other pipe connections, too, Smooth-On makes and keeps the joints tight, because this soft metallic filler retains its body, does not dry, shrink or blow out, is not affected by steam, water, oil or gas, and holds perfectly even at high pressures or wide temperature variations.

By making up all new pipe joints with Smooth-On No. 3 and keeping a can handy for use on troublesome old pipe joints, you can be sure of perfect and permanent joint tightness.

Buy Smooth-On in 1-lb., 5-lb. cans or 25-lb., 100-lb. kegs from your supply house or if necessary, from us. For your protection, insist on Smooth-On—used by engineers since 1895.

FREE

The 40-page Smooth-On Handbook—full of valuable suggestions that will save you time, effort and money on equipment repairs, such as sealing cracks in plant apparatus, stopping leaks at seams and bolts, tightening loose fixtures and parts of apparatus, waterproofing walls, floors, etc. Send the coupon for your copy.

SMOOTH-ON CEMENTS

for the Motor Car and Boat, Home, Factory and Power Plant

SMOOTH-ON MFG. CO., Dept. 66, 570 Communipaw Ave., Jersey City, N. J.

Please send the SMOOTH-ON HANDBOOK

Name ----------

Address ----------

10-17-40 ----------

Do it with SMOOTH-ON

WHY RISK DAMAGED THREADS?

Specify WEDGE THREAD PROTECTORS and get 4 Point Protection

LOOK THEM OVER

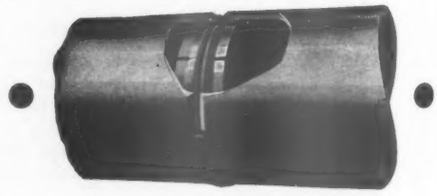
1. CLEARS CREST OF THREAD
2. LOCKS INSIDE OF PIPE
3. CLEARS FIRST FEW THREADS
4. HAVE SMOOTH ROLLED THREADS

Patent No. 2,156,169

Thousands of dollars' worth of pipe has been damaged in transit because threads were not properly protected. You can avoid the danger of damaged pipe by specifying WEDGE Thread Protectors. They have exclusive patented features that give MAXIMUM protection. Remember,—Only WEDGE Thread Protectors give you 4-POINT PROTECTION. They were especially designed for thread protection, and no other protector remotely approaches them for protective efficiency.

SAVE WELDING MATERIAL

With WEDGE Chill Rings you use less welding material. They also speed aligning, eliminate icicles, and assure perfect union. You can lay your line faster with WEDGE Chill Rings and save time and money. Write for prices.



Write for Prices and Specifications

WEDGE PROTECTORS, INC.

9520 Richmond Ave., Cleveland, Ohio

use WEDGE Thread Protectors-Chill Rings

Completions and Locations on Increase in East Texas

By R. MARNE SANFORD

DALLAS, Tex., Oct. 14.—One of the most active and eventful 7-day periods in several months marked the past week's developments in the eastern Texas district. Both new locations and completions showed a decided increase over previous weeks. Wildcat locations totaled the greatest number in several months as seven started during the week.

The East Texas field, which was predicted to record an average of about three or four completions per week during the coming months, reported a total of 10 new wells for an initial aggregate potential of 513 bbl. hourly, based on short 2 and 3-hour flows. A total of 11 new locations were staked in the big field. The East Central Texas district reported a total of 15 completions, 6 being oil wells, 4 gas wells, 1 dry hole and 3 abandoned locations. One of the completions was an injection well in the Grapeland gas field of Houston County.

New Wildcats

In Anderson County Brothers Oil Co. staked 1 Cartmell, E. Ewing Survey, 4 miles southwest of Palestine. It is a Woodbine sand test and is on a block of about 3,000 acres assembled during the past few months by Elbert Williams and associates.

In Hopkins County a failure at 4,064 ft. is being rigged up for deepening to the Travis Peak level expected at about 6,000 ft. It is the old W. P. Vaughn 1 Chapman, Francis Hopkins Survey, in the Tira community. It was quit in the Paluxy sand topped at 3,934 ft. The Woodbine sand was topped at 2,540 ft.

On a farmout from Magnolia Petroleum Co. in Limestone County, C. L. Brown of Corsicana has staked 1 E. Barron in the two-well Pettit lime gas field 5 miles southwest of Groesbeck. Derrick is up for the outpost test which is 330 ft. from the east and 145 ft. from the north lines of the S.A.&M.G. Survey. It is about 945 ft. south of Samuell & Zephyr 1 Barron, completed last year from a plugged-back depth of 5,744 ft. for 5,575,000 cu. ft. of gas daily. The test has been started and is drilling below 40 ft. according to reports.

In Freestone County and about 6½ miles north of Fairfield, J. L. Collins of Corsicana has taken over the old Arkansas Fuel Oil 1 O. B. Utley, wildcat test in the J. S. Claypool Survey, and plans to rework the test in an attempt to complete as a producer. Arkansas Fuel abandoned the hole last August at 4,500 ft. after tests through perforations from 4,000-05 ft. and 3,997-99 ft. returned only small amounts of gas, oil and water.

Two tests were located in McLennan County during the week. About 13 miles northeast of Waco Rush & Sanders have spotted 1 McBride in the 47-acre tract of the A. R. Valdez Survey. Contract depth was not reported. Adjoining the town of Elm Mott E. P. Campbell and associates of Fort Worth have staked 1 Sallie Stewart, 5 miles north of Waco and in the S. Burton Survey. It is drilling past 400 ft. on a 1,000-ft. Georgetown lime contract.

Seeking production along the Flag Lake-Bazzette fault system of northwestern Henderson County and northern Navarro County, L. A. Demer of Waco staked 1 E. F. Bain, a Woodbine sand wildcat 3½ miles north of the Bazzette townsite in northeastern Navarro County. It is 330 ft. from the north and east lines of the north 40 acres of a 104-acre tract in the John Duncan Survey.

EASTERN TEXAS COMPLETIONS

Rusk County

Joiner area: Fain Oil 3 Alford, 58 bbl. in 5 hr., tubing, 3,574-3,692 ft.
A. G. Fullerton 2 Pinkston, 45 bbl. in 50 minutes, tubing, 3,640-54 ft.
Sinclair Prairie 1 Waggoner, T.D. 3,764 ft., injection well.

Anderson County

Long Lake field: Hassie Hunt 1 Smith, 55 bbl., 3/32-in. choke, 5,364-85 ft.
Tide Water-Seaboard 16 Shaw & Cern, 128 bbl., 7/64-in. choke, 5,210-50 ft.

Franklin County

Talco field: Humble 21 Penn-fee, 153 bbl. 6 hr., pumping, tubing, 4,119-4,255 ft.
Texas Co. 18 Barker, 43 bbl. in 10 hr., flowing, 4,121-4,275 ft.

Freestone County

Wildcat: W. H. Keeling 1 Coleman, H. Howard Sur., 2 mi. SW Streetman, abandoned location.

Gregg County

Willow Springs field: Roger Lacey 1 Lacey, 576,000,000 cu. ft. gas, 7,280-7,352 ft., T.P. 2,887 lb., C.P. 2,888 lb.
Longview area: W. D. Ambrose 12 Jones, 305 bbl. in 5 hr., tubing, 3,565-95 ft.
W. D. Ambrose 14 Jones, 310 bbl. in 3 hr., tubing, 3,570-3,600 ft.
Deep Rock Oil 28 Jones, 33 bbl. 30 minutes, 3,563-3,602 ft.
Hawkeye Pet. 4 Bonner, 67 bbl. in 2½ hr., tubing, 3,602-18 ft.
Magnolia 28 R. B. White, 90 bbl. hr., tubing, 3,523-45 ft.
Shell 33 Burnside, 30 bbl. in 36 minutes, 3,515-56 ft.
Kilgore area: M. R. Flannigan 11 Walker, 15 bbl. in 30 minutes, 3,588-3,688 ft.
Potter Bros. 1 Crim Theater, 28 bbl. hr., tubing, 3,540-3,680 ft.

Henderson County

Wildcat: Manning & Pickens 2 Bell, D. Muckleroy Sur., 6 mi. SW Mabank, abandoned location.

Houston County

Grapeland field: American Liberty 2 Moody, 5,982-6,014 ft., injection well.
Lone Star Gasoline 1 Herrod & Finch, 115,000,000 cu. ft. gas, 5,935-6,040 ft.

Limestone County

Mexia field: Taylor 1 Reid, top Austin 2,581 ft., Woodbine 3,430 ft., Buda 3,560 ft., Del Rio 3,742 ft.,
(Continued on Page 116)

BEAIRD

BEAIRD facilities combine Engineering, Design and Fabrication of pressure Vessels to A.S.M.E. and A.P.I.-A.S.M.E. Codes. Tanks and Structural Steel for every refinery need. Including: Fractionating Towers; Reboilers; Heat Exchangers; Pressure Storage Tanks; Finished Steel Fittings; Iron and Steel Castings.

The J. B. BEAIRD CORPORATION
Manufacturers of Steel Fittings, Refinery Vessels, Steel Derricks, Oil Field Equipment
SHREVEPORT, LA.

—in a "glittering"—"gleaming"
Santa Fe
STREAMLINED SPECIAL TRAIN
—SPEED in luxury and comfort to the . . . . . .
A.P.I.-CHICAGO
• November 11-15, 1940 •

• Streamliner to consist of sleek stainless steel Pullman and Fred Harvey Diner with standard type Club Car, drawn by a diesel locomotive.

• TRAVEL to CHICAGO AND RETURN on this Santa Fe Streamlined Special •

Going Trip—		Return Trip—	
Nov. 10—Lv. TULSA	6:00 P.M.	Nov. 15—Lv. CHICAGO	6:00 P.M.
Nov. 10—Lv. Bartlesville	7:00 P.M.	Nov. 16—Ar. Kansas City	2:25 A.M.
Nov. 10—Lv. Kansas City	11:35 P.M.	Nov. 16—Ar. Bartlesville	7:00 A.M.
Nov 11—Ar. CHICAGO	8:00 A.M.	Nov. 16—Ar. TULSA	8:00 A.M.

For complete information and reservations—
TELEPHONE, WRITE or WIRE
J. S. Rollman, City Pass. Agt. Santa Fe Lines
Phone: 3-0173 • 417 So. Boston Ave., TULSA, OKLA.

60 Day Limit, Round Trip, First Class Fare TULSA to CHICAGO $31.80

Continue to Seek Deep Pays In Northeast Ohio

By STAFF CORRESPONDENT

NEWARK, Ohio, Oct. 14.—Magnolia Petroleum Co. has staked its second deep test in the northeastern Ohio region, 2 miles southwest of Geneva in Ashtabula County. The test will be drilled on Breyley Brothers' tract, Lot 43, Harpersfield Township, 330 ft. north of the south lot line and center east and west. The test is expected to go to the Trenton horizon.

In Harrison County Frank Stranges is drilling at 4,264 ft., 100 ft. in the Corniferous lime on the Ben Barclay, Section 29, Moorefield Township.

Out of the crop of 20 gas wells completed this week, Summit County yields the only one with a fair open flow, making 2,800,000 cu. ft.; four small oil wells and three dry holes make up the balance of the report.

Athens County

Ames Township: Orndoff 3 Lea White, Fraction 33, 90,000 cu. ft. gas, shot Stray 339-63 ft.
Orndoff 3 J. B. Keirns, Sec. 29, 40,000 cu. ft. gas, shot, second Berea 1,381-87 ft., T.D. 1,397 ft.
Carthage Township: F. S. Moore 1 N. A. Stout, Fraction 18, 100,000 cu. ft. gas, Macksburg 800 ft., sand 1,117-94 ft.
Lodi Township: Cody 3 C. Ruth heirs, Fraction 36, 100,000 cu. ft. gas, shot, second Berea 1,620-35 ft.

Coshocton County

Monroe Township: Butler Bros. 1 Oliver Borden, Sec. 18, dry, Berea, T.D. 1,132 ft.

Fairfield County

Berne Township: City Natural 1 Isaac Matheny, Sec. 10, 115,000 cu. ft. gas, Clinton 2,122-49 ft.

Gallia County

Addison Township: B. & W. Gas Co. 3 B. O. Mink, Sec. 28, 50,000 cu. ft. gas, shot, second Berea 1,538-52 ft.

Guernsey County

Adams Township: Ridgeway et al 1 O. C. Ford, Sec. 21, 50,000 cu. ft. gas, shot, Berea 1,060-93 ft.
Valley Township: Jewell 1 Paulaski Cubbison, Sec. 11, 35,000 cu. ft. gas, Berea 1,220-26 ft.

Holmes County

Washington Township: Ohio Fuel 1 G. F. Houser, Sec. 28, 200,000 cu. ft. gas, shot, Clinton, T.D. 2,879 ft.

Newark Field—Licking County

Mary Ann Township: Willey et al 1 W. A. Hoover, Sec. 330,000 cu. ft. gas, shot, Clinton 2,590-2,625 ft., T.D. 2,640 ft.
Madison Township: Ohio Fuel 1 Geo. A. Pigg, Lot 11, second quarter, 100,000 cu. ft. gas, shot, Clinton 2,557-92 ft.
Newark Township: Willey et al 1 Anna Stock, northwest of fourth quarter, 370,000 cu. ft. gas, shot, Clinton 2,512-26 ft., T.D. 2,543 ft.
Willey et al 1 Florence Hoffer, first quarter, 250,000 cu. ft. gas, shot, Clinton 2,369-99 ft.
Newton Township: Ohio Fuel 11 Dewitt Hansberger, fourth quarter (deepened from Newburg), 660,000 cu. ft. gas, Clinton 2,569-91 ft.
Fallsburg Township: McClay Bros. 1 Chas. P. Smith, Sec. 13, 40 bbl., shot, Clinton 2,978-3,028 ft.

Medina County

Chatham Township: Preston Oil 3 Glenn Garver, Lot 14, Tract 16, 10 bbl., shot, Berea 333-51 ft. and 373-82 ft., T.D. 412 ft.
Granger Township: Ohio Fuel 1 J. S. Hatch, Lot 30, 70,000 cu. ft. gas, Clinton, T.D. 3,557 ft.
Spencer Township, Ohio Fuel 1 C. E. Ensign, Sec. 5, 30,000 cu. ft. gas, Newburg, (Clinton dry), T.D. 2,600 ft.

Morgan County

Marion Township: Crowley 3 Earl Bowman, Lot 7, 665,000 cu. ft. gas, Brill, T.D. 948 ft.
Harris 3 T. E. Rabberman, Lot 13, dry, Maxon, T.D. 1,025 ft.

Meigs County

Rutland Township: Shuster 1 E. O. Wood, Sec. 21, dry, (gas drowned out), Maxon, T.D. 933 ft.

Noble County

Beaver Township: Barnesville Dev. 1 Geo. Deal, Sec. 5, 40,000 cu. ft. gas, shot, Berea, T.D. 1,740 ft.
Olive Township: Permain Co. 1 Clare Heddleson, Sec. 4, 70,000 cu. ft. gas, Berea, T.D. 1,391 ft.

Perry County

Clayton Township: Pure Oil 3 Martha J. Miller, Sec. 18, 15 bbl., shot, Clinton 3,205-38 ft., Medina 3,363-70 ft., dry.
Monroe Township: Ruth 2 A. G. Post, Sec. 20, 6 bbl., shot, Berea, T.D. 1,213 ft.

Summit County

Green Township: Burtner et al 1 Frank Geig, Sec. 32, 2,780,000 cu. ft., gas, shot, Clinton, T.D. 4,118 ft.

Washington County

Barlow Township: Porter et al 1 M. E. Carr, Sec. 7, 300,000 cu. ft. gas, Maxon 1,352-1,411 ft.

INDIANA

EVANSVILLE, Ind., Oct. 14.—Seven oil wells, two gassers and five dry holes were completed in Indiana last week. All of the oil wells were in Gibson County with the exception of a 35-bbl. pumper in Spencer County.

Among the near completions is the Basin 1 Oakland City College, SE SE NW 16-8s-1w, which is showing up for about 100 bbl. at 2,584 ft.

INDIANA COMPLETIONS

Delaware County

J. O. Ebrighte 3 fee.....NW NW NE 2-21n-10e
Dry, T.D. 913 ft.

Floyd County

Floyd Co. Dev. 3 Coffman.....NE NE SE 32-1s-5e
Dry, Devonian 730 ft., T.D. 770 ft.

Gibson County

Continental 9 Keck.....NW NE SW 27-3s-14w
Pumped 272 bbl. oil, 2,000 gal. acid 2,876-87 ft., T.D. 2,896 ft.
Continental 13 Bozeman.....SE SW SE 24-3s-14w
Pumped 148 bbl. oil 2,093-2,125 ft., T.D. 2,128 ft.
Continental 12 Bozeman.....SW NW NE 23-3s-14w
Flowed 142 bbl. oil, 2,000 gal. acid 2,856-65 ft., T.D. 2,869 ft.
Hall Edwards 4-C Maier.....NE NE SE 14-3s-14w
Flowed 480 bbl. oil, 3,000 gal. acid 2,846-53 ft., T.D. 2,855 ft.
Hall Edwards 10-A Maier.....NW SE SE 14-3s-14w
Flowed 250 bbl. oil, 2,512 ft.
W. F. Lacey 2 Dunn.....SW SW SW 18-3s-13w
Pumped 137 bbl. oil, 20-qt. shot 2,074-84 ft., T.D. 2,086 ft.
United Pet. 1 Maxon.....NE NE NE 32-1s-5e
Dry, T.D. 1,515 ft.

Harrison County

B. F. Brown 1 R. O. Brown.....NW SW NE 32-3s-4e
200,000 cu. ft. gas 772 ft., R.P. 125 lb., top New Albany shale 754 ft.

Knox County

W. C. McBride 1 Lewis.....NE NE NE 26-2n-11w
Dry, Ste. Genevieve 1,814 ft., McClosky 1,879-82 ft., slight show oil, T.D. 2,050 ft.

Porter County

Norris & Brown 1 Cole.....SW NW SE 19-36n-5w
Dry, T.D. 370 ft.

Spencer County

Hendrickson et al 1 Parsley-Seay Comm.....
E½ SW SE 32-7s-6w
1,285,000 cu. ft. gas 615-27 ft.
Damron 3 Boyd.....SE SE SE 30-7s-6w
Pumped 35 bbl. oil 934-42 ft.

INDIANA DRILLING REPORT

Gibson County

Midwest et al 1 Rainey.....SW SW SW 11-2s-9w
Ste. Genevieve 1,550 ft., drilling 1,580 ft.
Oleum 1 Johnson.....NE NE SE 5-2s-8w
Glen Dean 1,069 ft., Golconda 1,120 ft., slight show oil 1,190-93 ft., T.D. 1,230 ft., will shoot.

Newton County

Vaughn & Smith 1 Bogle.....NE NW NE 5-31n-8w
Trenton 876 ft., slight show oil 880-89 ft., drilling 900 ft.

Posey County

C. T. Somers et al 1 Hill.....NE NE NE 2-4s-14w
Perf. 2,865-71 ft., showed water, P.B. to 2,820 ft., T.D. 3,127 ft.
Basin Drlg. Co. 1 Oakland City College.....
SE SE NW 16-8s-14w
Swabbed 50 bbl. oil in 7 hrs., 30-qt. shot 2,565-82 ft., T.D. 2,584 ft., testing.

Spencer County

Snell et al 1 Graham.....SE NW NE 15-6s-7w
Ste. Genevieve 1,455 ft., S.D. 1,525 ft.

Vanderburg County

Weir & Sparrow 1 Nurrenbern NE SE SW 5-7s-11w
Oil sand 1,026-31 ft., set 5-in. 1,005 ft., drilling plug.

EASTERN KENTUCKY

ASHLAND, Ky., Oct. 14.—Reports received during the past week give completion data on several previously completed wells in the eastern Kentucky area as well as current completions. A total of seven gas wells and one oil well were reported.

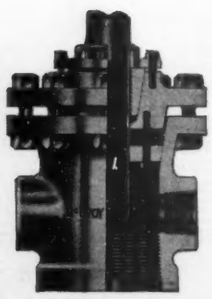
Floyd County

Kentucky-West Virginia 599, Willie D. Hall, on Right Beaver Creek, 133,000 cu. ft. gas, R.P. 210 lb., in shale at 2,868 ft.

Knott County

Warfield 4881 M. S. Crain, Tract 1, on Edwards Branch, 232,000 cu. ft. gas, in shale at 2,944 ft.

LOW COST Tubing Head
with slips above packing



Drawing shows thick packing, slips above packing and hold down ring for slips. This head is very popular for pumping wells.

Here is a low cost moderate pressure tubing head with slip suspension of tubing above packing.

You can adjust your tubing under pressure because the slips are above packing.

Hold-down ring for slips insures positive grip. Tubing cannot drop.

Thick, oil resistant rubber packing acts as a shock absorber to relieve stress in tubing of pumping wells.

Save on first cost and reworking time by installing the McEvoy Type LS Tubing Head on your next well. Order it through your favorite supply store.

SEE McEvoy Section of 20 PAGES in the Composite Catalog

McEVOY COMPANY
TEXAS AT MILBY
HOUSTON, TEXAS
EXPORT OFFICE: 30 CHURCH ST., NEW YORK

Warfield 4888 J. R. Triplett, on right fork of Elk Creek, 424,000 cu. ft. gas, in shale at 2,646 ft.
E. C. Ware et al 1 J. W. Duke, on Combs Branch, 2,454,000 cu. ft. gas in Maxon at 1,806 ft.

Pike County

Columbian Fuel GW-840 Benton Smith, on Benton Branch, 1,700,000 cu. ft. gas, in sand at [illegible] ft.
Virginian Gas & Oil V-1290 Federal Oil & Gas, on Little Crooked Branch, 7 bbl., in Maxon at 1,473 ft.
United Carbon 843 Republic Steel, Tract 7, on Levisa Fork, 539,000 cu. ft. gas at 3,567 ft.

Morgan County

Owens, Libbey-Owens 1 J. H. Wilson, on Grassy Creek, 18,000 cu. ft. gas in Corniferous at 1,334 ft.

WESTERN KENTUCKY

OWENSBORO, Ky., Oct. 14.—Six dry holes and two small oil wells were completed in western Kentucky during the past week. Two of the dry holes were in the recently discovered Hebbardsville pool.

Breckinridge County

Cabot dist.: McDonough & Co. 2 Noel Mason, abandoned location.
Pleasant Grove Church dist.: Charles Marsh 3 Moxley heirs, dry through Jett, T.D. 191 ft.

Butler County

Silver City dist.: Billy Phillips 1 John Abbott, dry, through Jones sand, T.D. 521 ft.

Daviess County

Utica dist.: Farmer 6 Frank Nation, 20 bbl., 80-qt. shot, Barlow sand 1,361-87 ft., T.D. 1,393 ft.
Daugherty 1 C. E. Leet, dry through Barlow sand, T.D. 1,509 ft.
Ellis 1 Cravens, temporarily abandoned location.
Ellis 1 J. C. Ellis, moving in.
Hupp 2 C. H. Stevens, moving in.
Handyville dist.: Staves Drilling Co. 1 L. I. Igleheart, drilling deeper, old T.D. 1,292 ft.

Henderson County

Hebbardsville dist.: Connell et al 2 Otto Busby, 10 acres, dry through lower Jett, T.D. 1,524 ft.
Stewart & Snyder 1 Otto Busby, 135 acres, dry through Jett, T.D. 1,555 ft.
Connell 3 Otto Busby, 10 acres, drilling at 300 ft.
Jack Cox 1 G. F. Priest, spudding in.

Ohio County

Dundee dist.: Sohio 8 J. E. Mitchell, 95 acres, 10 bbl., 60-qt. shot, Jackson sand 529-49 ft.
Pleasant Grove Church dist.: C. D. Lambert 2 Walter Walker, dry through Jones sand, T.D. 430 ft.
United Petroleum Co. 2 R. I. Miller, location.
G. A. Morris 1 Shreve heirs, rigging up.
W. H. Parks 6 W. L. Tuttle, location.
Fordsville dist.: L. M. Steele 6 Arch Cooper, location.

Southwest Texas Fields

(Continued from Page 108)

103 bbl., 17 hrs., ⅛-in. choke, perf. casing 5,579-94 ft., T.D. 5,612 ft.

San Patricio County

McCampbell field: Manahans 1 Carlock, 70 bbl., ⅛-in. choke, T.D. 7,200 ft.
Texas Atlas 1-37 Conn-Brown, 49 bbl., ⅛-in. choke, perf. casing 7,129-33 ft., T.D. 7,525 ft.

Victoria County

Victoria field: Norsworthy Production Co. 1 Piegsa, gas well, T.D. 3,058 ft.

LAREDO DISTRICT

Brooks County

Kelsey field: Humble 70 McGill, 69 bbl., 9/64-in. choke, T.D. 4,738 ft.

Duval County

Bridwell field: Bridwell 2 Parr, 198 bbl., ⅛-in. choke, sand 4,313-18 ft., T.D. 4,318 ft.
Lundell field: Government Wells Oil Co. 44 Lundell, 96 bbl., ¼-in. choke, T.D. 1,554 ft.
Magnolia 10 Duval County Ranch Co., 30 bbl., pumping, sand 1,515-21 ft., T.D.
Wildcat: J. L. Collins 1 Adami, dry, T.D. 1,357 ft.
Diamond Halff 1 Cantu, dry, T.D. 2,788 ft.

Hidalgo County

Samfordyce field: Phillips 4 Flores, 56 bbl., 10 per cent salt water, 3/32-in. choke, perf. casing 4,068-73 ft., T.D. 4,196 ft.

Jim Hogg County

Colorado field: Humble 21 King ranch, 162 bbl., ⅛-in. choke, T.D. 2,988½ ft.
V. F. Neuhaus 3-G Trevino, 212 bbl., ¼-in. choke, sand 2,906-19 ft., T.D.
Manila field: Guy Davis 1 Zachry, 199 bbl., ¼-in. choke, sand 2,595-98 ft., T.D. 2,600 ft.

Live Oak County

White Creek field: Coquat, Holland et al 1 Goad, dry, T.D. 1,540 ft.
Holland & Smith 1 Bonham, dry, T.D. 1,338 ft.

McMullen County

Wildcat: Tybro Oil & Royalty Co. 1 Shiner, dry, T.D. 1,478 ft.

Starr County

North Rincon field: Texas 1 Davenport-State, dry, T.D. 5,523 ft.
Rincon field: W. R. Davis 6-A Davenport, 196 bbl., ⅛-in. choke, perf. casing 3,732-55 ft., T.D. 4,230 ft.
W. R. Davis 17-A Slick, 170 bbl., ⅛-in. choke, perf. casing 3,958-78 ft., T.D. 5,245 ft.

Webb County

Adami field: Dan Purvis 8 Adami, dry, T.D. 80 ft.
Wildcat: Seaboard Oil Co. 1 Newton, dry, T.D. 2,085 ft.

Zapata County

Blas Uribe field: Martinez & Salinas 2 Bruni, dry, T.D. 944 ft.

SAN ANTONIO DISTRICT

Bell County

Wildcat: J. J. Cormas 1 Ellis, dry, T.D. 493 ft.

Bexar County

Wildcat: H. L. Bedwell 1 Russell, dry, T.D. 568 ft.
T. O. Woodruff 1 Lamm, dry, T.D. 1,570 ft.

Guadalupe County

Darst Creek field: J. E. Clark 1 Posey, 176 bbl., 5 per cent sulfur water, pumping, T.D. 2,603 ft.

SOUTHWEST TEXAS DRILLING REPORT

Bee County

Dirks Brothers 1 Dugat, James Grey Sur., dry, T.D. 3,781 ft.

Brooks County

Sun 1 Boedeker, 12 mi. S of Falfurrias, R. Guzman Sur. 16, coring shale 8,630 ft.
West Production Co. 1 Emers, 5 mi. NE of Falfurrias, Loma Blanca grant, drilling shaly sand 6,350 ft.

Calhoun County

Henshaw Brothers 1 McCamey, Thatcher and Leonard Sur., dry, T.D. 6,720 ft.

Duval County

Humble 1 Central Securities Co., Diego Ynojosa Sur., recovered 120 ft. oily mud and salt water, D.S. test 4,381-91 ft., drilling ahead.

Hidalgo County

Humble 1 American Life Insurance Co., Missouri Texas Land & Irrig. Co., subd., Lot 1, Blk. 13, coring shale 6,525 ft.

La Salle County

H. R. Cullen et al 2 Wildenthal, S.&M.G. Sur. 17, drilling shale 6,147 ft.

Lee County

Fred Pederson et al 1 Brown, 2 mi. S of Tangleford, swabbing through perf. 8,558-74 ft., showing wash water and some gas.

Nueces County

R. S. Waldron 1 M. E. Lear, 2 mi. S of Corpus Christi, drilling shale 4,710 ft.

San Patricio County

Plymouth 1 Hall, 1 mi. NE of East White Point field, dry, T.D. 6,152 ft.

Wilson County

Walter Nelson 1 Platner, T. E. L. Parrott Sur. 160, top Edwards lime 3,863 ft., S.D. 3,895 ft.

Willacy County

Pan American et al 1 Garcia, 14 mi. E of Lyford, Electrical survey showed five sands at intervals 7,700-8,700 ft., no shows, S.D. for orders.

Zapata County

Dulup Oil Co. 1 Haines, Antonio Zapata Villa grant, coring shaly sand 1,656 ft.

THERE'S ALWAYS SOMETHING NEW

IN THE OIL BUSINESS AND IN OIL FINANCING

Majors . . . Independents . . . Amateurs—The Oil Industry's work is never done. As fast as one job is finished, they go on to develop new fields, to improve its products, to supply new tools, to train more workers, because the production of oil is one of the vital industries in our economic world.

Financing this vital industry is a major problem, too. Oil Loans must allow satisfaction for both the borrower and the lender, and that requires that the men who make them, "know their oil".

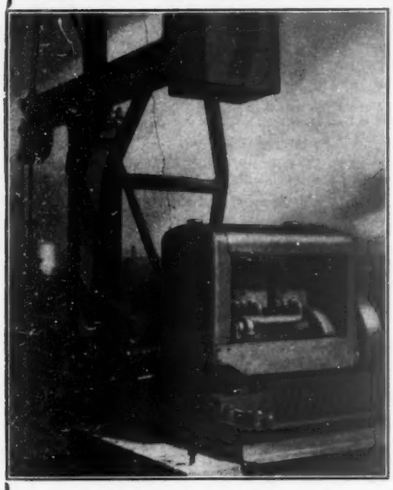
We've been making oil loans since this territory was made an oil country. We earned our distinctive title of: "The Oil Bank of America," because we knew oil financing.

Whether you're a drilling contractor, an operator, a geologist, the president of a company—if you're interested in oil and need money—this is THE BANK FOR YOU.

NATIONAL BANK OF TULSA

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

An Oil field Pumper Engine that can STAND THE GAFF!



Many an oil field man has discovered that here at last is a HEAVY-DUTY PUMPER ENGINE in the lower power range.

NOVO PUMPER ENGINES were especially built for this type of work. They are not made-over, automotive, or intermittent-duty, industrial engines, but real, honest-to-goodness oil field engines, designed by an oil field engineer and incorporating many features suggested by the oil men themselves.

And have they proved successful? Just ask anyone who has been using the new Novo Model CWP Pumper engine, and you'll hear, "There's the power unit that can stand the gaff."

Send the coupon for literature.

Sales and Service by NATIONAL SUPPLY COMPANY

Novo Engine Co., 240 Porter St., Lansing, Mich. Send literature and prices on the Novo Pumper Engines.

Name .....

Address .....

City ..... State .....

NOVO ENGINE COMPANY
LANSING, MICHIGAN

Renew Your Subscription Promptly

THAT'S WHERE TO STAY IN ST. LOUIS!
HOTEL Mayfair
DOWNTOWN - REAL FOOD AND SERVICE - NEARBY PARKING - PRIVATE BATH RADIO RECEPTION

William M. Barret, Inc.

Consulting Geophysicists

Specializing in Magnetic Surveys

Contracts accepted for domestic and foreign projects, using the most improved instrumental and interpretative technique.

GIDDENS-LANE BUILDING -:- SHREVEPORT, LA.

Tinsley Operators Agree on Voluntary Proration

By GEORGE WEBER

JACKSON, Miss., Oct. 15. — Warren County is again coming to the front in Mississippi activity. Magnolia and Exchange are drilling a wildcat in 13-14n-4e and W. O. Allen is at 2,200 ft. in his 1 Henry, 4-7n-4w. A third test, regarded with much interest, is the Roeser & Pendleton 1 Ogilvie, whose location is in SE NW 32-24n-2e, on Davis Island. This test will go deeper than previous wildcats drilled on the well-known prospect. Another operation in Warren County may result from reports that a wildcat drilled and abandoned several months ago may be plugged back, sidetracked and the Wilcox formation cored. The Wilcox is receiving considerable play to the southwest in La Salle and adjoining parishes, North Louisiana.

The Attala County wildcat, Crosby & Jones 1 Allen, has not yet been tested in the Eutaw formation, which showed a decided "kick" in a Schlumberger picture at 4,018-25 ft. The indication of production in the 1 Allen is regarded by some to be better than that obtained in the discovery well at Pickens. Total depth of the test is 4,534 ft. in the Tuscaloosa, and it is believed that casing will be run either to the top of the prospective oil zone, or through it and perforated.

Bear Creek Structure

The Bear Creek structure which straddles the Mississippi-Alabama line in Colbert County, Alabama, and Tishomingo County, Mississippi, is also being watched with interest. Mellen & Gear, after drilling 1 Alsobrook in Colbert County, east side of the structure, had a good gas show in the Trenton lime, but commercial production was impossible, according to their opinion, due to a low permeability. The second Bear Creek test is now under way in Tishomingo County, and the well-regarded possibilities will center attention on that section shortly when the new test, 1 E. K. Wood, approaches critical depth.

Leasing continues to extend eastward into Alabama, Georgia and Florida. Southern Georgia seems due for more drilling, and plans call for deepening the Georgia Resources, Inc., 1 Gillican, Clinch County well shut down in the top of the Wilcox, to the Eutaw or possibly even the Tuscaloosa formations.

Geophysical shooting declined in Mississippi and remained relatively the same in eastern states. Thirty-seven crews are active in the southern section of Mississippi and eight are shooting in Alabama.

Tinsley

Operators at Tinsley have reached a voluntary agreement on crude production, which will hold the field's output relatively stable in the future. Effective October 4, all wells south of the main northwest-southeast fault through the field were reduced to a daily production of 75 bbl. All wells north of the fault will produce 250 bbl. daily. The latter figure represents a compromise, since one operator with his own outlet would not curtail his production. As a part of the agreement, Standard Oil Co. of Louisiana, only field-wide purchaser, has increased the daily well take from 100 to 150 bbl., which will provide an outlet for all production under the new agreement. Wells are about equally divided between the two producing areas divided by the fault, and production will decline to about 14,000 bbl. daily and increase gradually with new completions. The agreement stops the production race which resulted in most of the field's output going to storage during the past several weeks.

MISSISSIPPI COMPLETIONS

Wildcat—Attala County

Jackson & Spearman 1 W. H. Crosby, NW NE 3-14n-7e, T.D. 5,262 ft., dry, tops Selma 2,160 ft., Eutaw 2,963 ft., Tuscaloosa 3,430 ft.

Wildcat—Grenada County

L. L. Peeples 1 J. A. Thomas, NE NW NW 17-21-16, T.D. 400 ft., dry.

Wildcat—Yazoo County

Exchange Oil Co. 1 A. E. Edgar, SW NW NW 28-13n-1w, T.D. 6,505 ft., dry, tops Wilcox 1,730 ft., Selma 4,627 ft., Eutaw 5,470 ft., Tuscaloosa 6,112 ft.

Tinsley—Yazoo County

Hassie Hunt 1 Shannon, NW NW NW 14-10-3, 96 bbl., ¼-in. choke, T.P. and C.P. 320 lb., Perry sand 4,830-57 ft., 5½-in. casing 4,830 ft., T.D. 4,857 ft.

MISSISSIPPI DRILLING REPORT

Attala County

Crosby & Jones 1 Allen, SW SW 33-13n-5e, T.D. 4,534 ft., preparing to P.B. to sand 4,018-25 ft. and test, Eutaw 3,772 ft., Tuscaloosa 4,300 (?) ft.

Grenada County

J. Papadakis 1 Holcomb, SE NE 13-22n-2e, moving in material.

Womble & Williams 1 Conn. General Life Ins. Co., NW SE 28-23n-5e, S.D. 1,423 ft.

Jones County

T. N. Smith 1 Hollifield, NW SW NW 20-8n-12w, fishing drill stem, latest reported depth 6,447 ft., Selma 5,480 ft.

Kemper County

R. M. Crabb et al 1 Land, NW NE 12-10n-14e, drilling 1,347 ft.

Lamar County

Tatum Lumber Co. 1 W. S. F. Tatum, NE 14-2n-16w, drilling shale and sand 2,147 ft.

Lee County

R. L. Shoemaker 1 Martin, SW SW NE 33-9s-6e, S.D. 632 ft. (cor.).

Marshall County

C. B. Blosser 1 C. Stansback, SE SE 19-3s-4w, drilling sand and shale 561 ft.

Montgomery County

E. R. Henderson 1 Columbian Mutual Life Ins. Co., 36-21n-5e, S.D. 3,332 ft., Tuscaloosa 2,678 ft.

Sharkey County

British American Oil Prod. Co. 1 F. B. Houston estate, N½ NE SW 23-11n-7w, drilling sand and shale 2,327 ft.

Tishomingo County

Mellen & Gear 1 E. K. Wood, SE SE SE 21-4s-11e, set 8-in. casing 149 ft.

Warren County

W. O. Allen 1 T. Henry, W½ SW 4-7n-4w, T.D. 2,200 ft., S.D., mixing mud.

Magnolia & Exchange 1 Paxton-Brown, NW NW 13-14n-4e, drilling 1,447 ft.

Winston County

Frame & Young 1 H. C. Chancellor, NE 9-13n-14e, rigging up.

Yazoo County

Arcarea Reserve Co. 1 J. G. Holmes, SE SE 22-12n-1e, spudded.

R. J. Dean 1 Allgood, NE NW 10-11n-2w, moving in material.

Edward DeLoach 1 Wilburn, 6-12n-3w, T.D. 3,994 ft., fishing Wilcox 1,730 ft.

MISSISSIPPI FIRST REPORTS

Wildcat—Tallahatchie County

Roeser & Pendleton 1 Ogilvie, SE NW 32-24n-2e, set surface casing.

Wildcat—Warren County

Barker & Brander 1 Parker, NW NW 17-14n-1e (Davis Island).

Tinsley—Yazoo County

Union 1 Childress, NE SE 24-10-3.
Union 2 Childress, NW SW 24-10-3.
Union 4 Robinette, SW NE 19-10-2.

ALABAMA COMPLETIONS

Wildcat—Marion County

Seaboard Oil Co. 1 Clarke et al, SE SW 28-11s-14w, T.D. 2,686 ft., dry.

ALABAMA DRILLING REPORT

Wildcat—Colbert County

Mellen & Gear 1 Alsobrook, S½ SW NW 10-4s-15w, T.D. 1,048 ft., gas show from Trenton lime, temporarily plugged, S.D.

Fayette County

B. L. Fillingame 1 Harbin, NW SW 3-16s-12w, S.D. 960 ft.

Franklin County

E. O. Heath, Jr., 1 W. O. Hester, SW SW 4-6s-12w, no report, last reported drilling 72 ft.

Madison County

J. L. Caldwell et al 1 McCord, NW SE SE 30-1s-2e, S.D. 105 ft.
W. W. Newman 2 W. P. Nichols, NW NE 2-6s-2e, drilling 247 ft.

Morgan County

F. W. Rohwer 1-B K. Hough, 2-6s-1w, drilling 370 ft.

Walker County

Champlin Oil & Ref. Co. 1 Galloway Coal Co., 12-13s-10w, drilling 2,387 ft. in lime.

CANADIAN FIELDS

Turner Valley Production Reaches New Peak

By VICTOR LAURISTON

CHATHAM, Ont., Oct. 12.—Crude and naphtha production from all Alberta fields in the first 8 months of 1940 totled 5,279,235 bbl. compared with 4,899,258 bbl. in the same period of 1939.

Turner Valley Gas Quotas

The Alberta Conservation Board has fixed allowables for Turner Valley gas-naphtha wells for October at 90,306,000 cu. ft. a day, allowables for individual wells ranging from 56,000 cu. ft. for Mayland 3 to 3,690,000 cu. ft. for Foothills Oil & Gas 1. Allowables cover 102 gas-naphtha wells, and do not affect crude producers, where gas is required for flowing the crude.

LEGAL

Department of the Interior, United States Land Office, Buffalo, Wyoming. Notice is hereby given that the oil and gas deposits in the Black Mountain oil field, Wyoming, are offered for leasing to the bidder of the highest bonus per acre, pursuant to the provisions of section 17 of the leasing act of February 25, 1920 (41 Stat. 437), as amended, at the royalty rate scale in the lease form shown in Circular 1386, in the following units: *Unit No. 1*, T. 42 N., R. 90 W., Sec. 6, Lots 1 and 2; T. 43 N., R. 90 W., Sec. 31, Lots 10 and 11. *Unit No. 2*, T. 43 N., R. 90 W., Sec. 31, SW¼ NE¼, N½ SE¼. *Unit No. 3*, T. 43 N., R. 90 W., Sec. 31, Lots 5 and 6, E½ NW¼. *Unit No. 4*, T. 43 N., R. 90 W., Sec. 31, Lots 7, 8 and 9, NE¼ SW¼. *Unit No. 5*, T. 42 N., R. 90 W., Sec. 6, Lots 3 and 4; T. 42 N., R. 91 W., Sec. 1, Lots 1 and 2. *Unit No. 6*, T. 43 N., R. 91 W., Sec. 25, Lots 1, 2, 3, 4, N½ SW¼. *Unit No. 7*, T. 43 N., R. 91 W., Sec. 35, Lots 1 and 2. *Unit No. 8*, T. 43 N., R. 91 W., Sec. 35, Lots 3 and 4, NE¼ SW¼, NW¼ SE¼. Any two or more of the units listed may be consolidated in a single lease, provided the maximum acreage of such lease is not in excess of that permitted by law, the drilling, royalty and rental requirements to apply to each unit separately. The sale will be held in the office of the Register of the District Land Office in Buffalo, Wyoming at 10:00 o'clock, A.M., on November 20, 1940. The successful bidder will be required to deposit on the day of the sale a certified check on a solvent bank, or cash, for 1/5 of the bid, and file a showing of qualifications to receive a lease, required by section 7 of General Land Office Circular 1386. The remaining 4/5 of the amount bid, together with the annual rental in advance at the rate of $1 per acre, must be paid, and a $5000 corporate surety bond must be furnished prior to the issuance of the lease. The successful bidder of Unit No. 4 will also be required to reimburse the owner of the equipment in the well on the land for the reasonable value thereof, estimated at $12,292. The bidders are warned against violation of the provisions of section 59 of the United States Criminal Code approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior. Register.

West Central field: Pacific Petroleums 5, LSD 6, 7-19-2w5, finished in the lime at 8,094 ft., is continuing production tests, making around 500 bbl. a day with gas-oil ratio around 760 cu. ft.

Okalta Oil 9, LSD 13, 18-19-2w5, finished at 7,971 ft., cleared oil used during acidization, but the booster gas supplied was not enough to start a steady flow. High-pressure-gas line has been laid from Calmont-Northwest 2, and definite production test is under way.

Royalite 52, LSD 12, 5-19-2w5, finished at 7,609 ft., is acidizing and testing.

Arrow Royalties 2, LSD 15, 13-19-3w5, got the Madison lime around 7,959 ft. and is deepening after cementing production string. Twin Valley Syndicate 1, LSD 9, got the Madison at 7,726 ft., and has cemented casing.

Southwest field: Pacific Petroleums 4, LSD 3, 32-18-2w5, has a fishing job around 7,892 ft., some 363 ft. in the Madison.

Northwest-Hudson's Bay 4, LSD 14, 8-18-2w5, is below 8,016 ft. after getting the Madison at 7,933 ft.

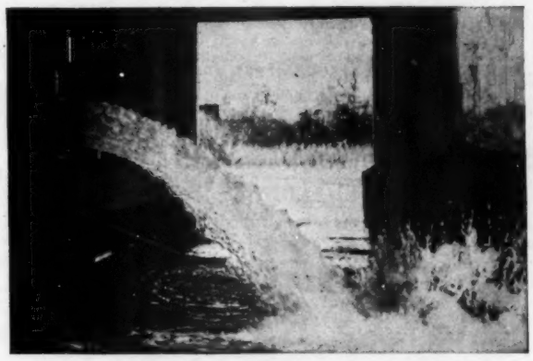
North Turner Valley: Alberta Oil Incomes 2, LSD 4, 4-21-3w5, is deepening below 8,651 ft. after testing the upper porous zone, where good showings were encountered.

Pincher Creek Test

On the Mill Creek structure, southern Alberta, Alliance Royalties 1, LSD 14, 11-6-2w5, which discontinued drilling at 6,722 ft. after faulting to the Benton formation has shot and tested oil shows in the upper sands, but failed to develop commercial production. The well will probably be abandoned.

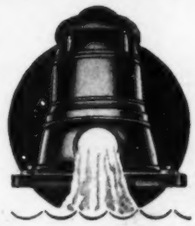
Vermilion Field

In the Vermilion field, East Central Alberta, Richardson 1, LSD 14, 20-50-5w4, encountered a heavily saturated crude sand at 1,817 ft, after only 2 days' drilling. Casing has been cemented for production test. It is estimated good for 100 bbl. a day of 14-gravity crude. Battleview 2 Graham-Norton, LSD 13, 20-50-5w4, is pumping 50 bbl. a day. Vermilalta-Frankview 2, LSD 4, cemented at 1,830 ft. was drilled in and after balling fluid, the crude rose to about 900 ft. Pump has been installed. Western Battleview 1, LSD 1, 30-50-5w4, cemented 1,838 ft. and has drilled in. It is waiting for pump. Alberta Southern 1 is rigging for standard test.



Solve Your Water Problems with

LAYNE WELLS & PUMPS



A Water Supply System can be your very best—or very poorest investment. It all depends upon the efficiency, low operation cost, and long life of the wells and pumps you have installed. If you would eliminate all elements of doubt, then choose Layne Wells and Pumps.

Layne Wells and Pumps need not be bought on potential performance. Time has proven every feature of their construction, and in addition, there is the reputation of a world-wide organization as an extra guarantee. Before the drilling starts, you may know exactly how much water you will get—and at what cost per thousand gallons.

Another fine feature is the cooperation of Layne engineers, both in determining the quantity of water you may need and the amount that may be secured from wells located on your grounds. These engineers will also make dependable and valuable recommendations on the kind and size of wells and pumps best suited to fulfill your needs.

AFFILIATED COMPANIES

LAYNE-ARKANSAS CO. . STUTTGART, ARK.
LAYNE-ATLANTIC CO. . . . NORFOLK, VA.
LAYNE-CENTRAL CO. . . MEMPHIS, TENN.
LAYNE-NORTHERN CO. . MISHAWAKA, IND.
LAYNE-LOUISIANA CO. LAKE CHARLES, LA.
LAYNE-NEW YORK CO. . NEW YORK CITY, AND PITTSBURGH . . . . . PA.
LAYNE-NORTHWEST CO. MILWAUKEE, WIS.
LAYNE-OHIO CO. . . . COLUMBUS, OHIO
LAYNE-TEXAS CO. . . . HOUSTON AND DALLAS . . . . . TEXAS.
LAYNE-WESTERN CO., KANSAS CITY, MO. CHICAGO, ILL. . . . OMAHA, NEBRASKA
LAYNE-WESTERN CO. OF MINNESOTA MINNEAPOLIS . . . . . MINN.
LAYNE-BOWLER NEW ENGLAND COMPANY, BOSTON . . . . . MASSACHUSETTS.
INTERNATIONAL WATER SUPPLY, LTD., LONDON . . . . . ONTARIO, CANADA

For newest bulletins, catalogs and folders showing installations for the nation's foremost cities and industrial plants, address

LAYNE & BOWLER, INC.
Dept. O, Memphis, Tenn.

LAYNE

PUMPS & WELL WATER SYSTEMS

For Municipalities, Industries, Railroads, Mines and Irrigation

Permian Basin

(Continued from Page 91)

Hockley County

Cascade Pet. 1 Walker, Sec. 22, Lge. 22, McCulloch County School Lands, drilling 2,000 ft.

Stonewall County

Shell 1 J. D. Patterson, SW NW Sec. 393, Blk. D, H.&T.C. Sur., Ordovician test, top Ellenburger 6,737 ft., T.D. 6,770 ft., prepare to take drill-stem test.

Yoakum County

Sloan & Zook 1 Waples-Platter, Sec. 565, Blk. 4, Gibson Sur., top Brown lime at 4,340 ft., slight show oil 5,240-60 ft., swabbed and flowed 167 bbl. oil in 24 hr., S.I. for gage.

Forest Development 1 A. C. Whisenant, SE Sec. 553, Gibson Sur., 1½ mi. N outpost to Waples-Platter area, top Brown lime 4,420 ft., drilling 4,923 ft.

Amon G. Carter 4-D Wasson, NW SE Sec. 50, Blk. AX, Public School Lands Sur., 9,000-ft. test, showed for 50 bbl. daily at 6,580 ft., drilling 7,100 ft.

TEXAS PANHANDLE

AMARILLO, Tex., Oct. 14.—Completions in the Panhandle district totaled 10 oil wells and 1 gas well during the past week. The aggregate initial potential of the new oil wells is 3,100 bbl., there being one well completed in Hutchinson County for an initial of 1,158 bbl., one of the Panhandle's largest in some time.

New locations for the district increased from 5 to 14 over the previous week. The locations were distributed four in Carson, three in Gray, four in Hutchinson, two in Wheeler and one in Moore.

PANHANDLE COMPLETIONS

Carson County

Cities Service 38-A Burnett, 40,700,000 cu. ft. gas, 2,215-2,360 ft.

Gulf 31 Cooper, 157 bbl., 425-qt. shot, 3,065-3,184 ft.

Gray County

Continental 7 Benton, 63 bbl., natural, 3,040-3,155 ft.

S. & M. Oil 8 Worley, 222 bbl., 640-qt. shot, 3,210-85 ft.

Stanolind 8 Saunders, 142 bbl., 380-qt. shot, 2,970-3,100 ft.

Hutchinson County

Clay Bros. 5 Herring-Huber, 81 bbl., 4,000 gal. acid, 3,218-50 ft.

Huber Corp. 9 Weatherly, 1,158 bbl., natural, granite wash, 3,005-85 ft.

Bob Murphy 1 Mathis, 272 bbl., 210-qt. shot, 2,968-3,012 ft.

Stanolind 18 Watkins B, 248 bbl., pumping, 605-qt. shot, 2,805-2,918 ft.

Texas Co. 13 Garner, 303 bbl., 230-qt. shot, 2,935-3,030 ft.

Texas Co. 26 Pond, 454 bbl., pumping, 208-qt. shot, 2,990-3,060 ft.

DRILLING REPORT

Cottle County

Ramsey Pet. 1 Lynch, SE SW Sec. 66, J. Poitevent Sur., 5,000-ft. test, drilling 4,028 ft.

Motley County

Humble 1 Matador, Sec. 29, Blk. J, B.S.B.&C.N.G. Sur., drilling 3,790 ft.

SOUTHEAST NEW MEXICO

HOBBS, N. M., Oct. 14.—A ¾-mile west extension for the Eaves field of Lea County, together with a new wildcat location for northern Eddy County, held the interest at the close of the week in the southeastern New Mexico district.

The Eaves field extension was Haymon Krupp and A. H. Flaherty 1-C Moberly-State, C NW SE 21-26e-37s. Pay sand was topped at 3,170 ft. and drilled to 3,225 ft., the total depth being 3,254 ft. Swabbing caused the well to kick off and flow into the pits at the estimated rate of 500 bbl. daily with 1,500,000 cu. ft. of gas showing. The Eaves field is mainly a gas field and this producer is one of a few oil wells in the area, and apparently the best one to date.

In northern Eddy County Mac T. Anderson has located his 1 Julia Brainard in SE NE NE 28-18e-27s. It is in the south extension area of the old Artesia field.

During the week one new gas well and two failures were recorded for Eddy County and three new oil wells and one failure were registered in Lea County. New locations showed an increase, with seven in Eddy County and eight in Lea County.

SOUTHEAST NEW MEXICO COMPLETIONS

Eddy County

Levers field: Powell-Mathews 2 Levers, NW SW 33-16-29, 225,000 cu. ft. gas, open casing, shot, 2,246-95 ft.

Leonard field: Herbert Aid Oil 1 Leonard-State, SE SW 16-17-29, dry at 3,053 ft.

Jackson field: Aston & Fair 7-B State, SW SE 32-17-30, dry at 2,511 ft.

Lea County

Maljamar field: Williams & Cockburn 3-A Miller, SW SW 23-17-32, dry at 3,890 ft.

Sears & Thrash 2-A Miller, NE NW 26-17-32, 37 bbl., open tubing, natural, 4,000-4,140 ft., after shot.

South Eunice field: Texas Pacific 20-A State, NW SE 7-22-36, 648 bbl. daily, natural, ¾-in. choke, 3,780-3,840 ft.

Langlie field: Gulf 2 Elliott, NE SE 15-25-37, 51 bbl., flowing, open tubing, shot, 3,310-96 ft.

SOUTHEAST NEW MEXICO DRILLING REPORT

Chaves County

H. Steinberger 1 Headley.....NW SW 26-14s-29e
Set 10-in. 350 ft., S.D. 1,095 ft.

Eddy County

Fulton 1 Johnson .....NW SE 22-19-27
Drilling 280 ft.
Truett & Tallmadge 1 Rudahl .....NE SE 2-20-24
Rigging up cable tools.
Wills & Abell 1 Hale 12-20-30
6,000,000 cu. ft. gas from 1,540-60 ft., sulfur water at 1,823-24 ft., preparing to P.B. and perf. in gas zone.
Dooley & Haynes 1 Martin .....SE NW 9-18-25
S.D. 885 ft.
Knox & Featherstone 1 Hatchett ...SW NE 14-20-26
Set 8¾-in. at 377 ft., S.D. 625 ft.
Talmadge 1 State .....SW NE 24-16-28
Slight show oil 2,505 ft., 10¼-in. at 358 ft., S.D. 2,605 ft.
Trojan 1 Grant .....SW NE 33-20-25
Set 8¼-in. at 1,300 ft., testing casing 1,641 ft.
Clark & LaNeve 1 Boulter .....SE NW 28-19-27
Oil sand 885-90 ft., 7-in. set at 880 ft., drilling 975 ft.

Lea County

Stanley & Weiner 1 Saunders.....NE NE 20-21-38
16-in. 80 ft., 8⅝-in. 1,609 ft., small showing of gas 4,134-35 ft., drilling 4,163 ft.
Great Western Prod. 1-D State .... SE SE 30-12-32
Slight show oil and salt water from 3,022-32 ft., 13-in. 156 ft., 8⅝-in. 1,434 ft., 7-in. 3,048 ft., drilling 4,222 ft., slight show oil 4,165-72 ft. in lime.

Otero County

R. H. Ernest 1 Located Land Co. .. SE SE 20-25-7
20-in. 105 ft., 15⅓-in. 736 ft., 12½-in. 1,250 ft., 10¾-in. 1,990 ft., 8¼-in. 2,213 ft., 7-in. 2,660 ft., S.D. orders 3,729 ft.

Illinois Fields

(Continued from Page 99)

Edwards County

J. D. Barnes 1 Hodgson .....N½ NE 1-2s-10e
Location.

Effingham County

Turner 1 Pruett .....SE SW NW 7-5n-3e
Drilling 1,495 ft.
C. L. Erwin 1 Patterson.....SW SW NE 18-8n-4e
Glen Dean 1,408 ft., Cypress 1,539 ft., Benoist 1,669-86 ft., to P.B. and test Cypress, T.D. 1,686 ft.

Fayette County

John Pummill 1 Isbell .....NW NE SW 33-8n-1w
Slight show gas 650-65 ft., slight show oil 990-98 ft., S.D. 1,165 ft.

Ford County

Nelson et al 1 Erp.....SW NW SE 19-24n-7e
St. Peter 2,112 ft., drilling 2,235 ft.

Gallatin County

Carter 1 B. M. York.....SE SE SW 33-7s-8e
Tested 7 bbl. an hr., 1,331-69 ft.
Exchange 1 O. Evans.....NE NE NW 20-8s-8e
Drilling 945 ft.

Hamilton County

Kingwood 1 Williams.....S½ SE NE 3-4s-6e
Drilling 2,451 ft.
Exchange-Kingwood 1 Prince....NW SW NW 31-5s-7e
Rig.
Exchange 1 Gen. Am. Life Ins. ..NE SE NE 35-5s-6e
10-in. 164 ft.
Exchange 1 Stelle.....SW NW SE 27-5s-6e
Derrick. First report.
Texas 1 G. Edwards .....NW NE NE 3-6s-6e
10-in. 132 ft., drilling 1,032 ft.

Hancock County

Sam Tate et al 1 J. Rice.....SW NE NW 28-4n-5w
S.D. 1,088 ft.
F. Henigman 1 M. Roberts .....N½ SE SW 24-4n-5w
Drilling 40 ft. First report.

Jackson County

W. R. White 1 Dean.....NE NW NW 18-9s-3w
Drilling 1,285 ft.
Barton & Shipman 1 P. Mahony..NE NE SE 20-9s-3w
Rigging up rotary.

Jasper County

Johnson 1 V. V. Hunt.....E½ SE NE 17-8n-10e
1,000 gal. and 3,000 gal. acid, pumped 14 bbl. oil and 34 bbl. water in 12 hr., testing 2,607 ft .
Anderson & Voorhees 1 A. Pippen.....
SE NW SW 16-8n-10e
Set 10-in. 480 ft.
Continental 1 G. T. Toland.....NE NE SE 34-7n-8e
Rigging up rotary. First report.

Jersey County

Hughes Pet. 1 Kollall.....SE SE NE 22-8n-12w
Trenton 625 ft., S.D. 1,015 ft.

Lawrence County

Robinson 1 Sauers .....NW SE NW 20-3n-12w
Elev. 508 ft., drilling 2,910 ft., 7-in. 2,025 ft.
W. Payne 1 H. Payne .....NW SW NW 20-3n-11w
Rigging up standard tools.
United Drlg. 1 Fornhoff.....SW NW SE 27-2n-13w
Derrick. First report.

Madison County

Aich & Carroll 1 Rinkel.....SE NE NW 33-5n-6w
Drilling 410 ft.

Marion County

Bialock 1 S. Schilling .....NE NE NW 18-1n-2e
Running 4½-in. 1,860 ft.
Texas 1 P. Chance .....NW NW SW 4-2n-2e
Pumped 10 bbl. in 3 hrs., 2,180-85 ft., 3,000 gal. acid, putting on pump.
Martin et al 1 Robinson .....SW SE SW 9-2n-1e
Trenton 4,268 ft., set 4½-in. 4,270 ft., waiting on cement 4,313 ft.
Shell 6-C Ververs .....E½ SE NW 18-3n-1e
D.S. test 3,921-4,100 ft. no show oil.

Montgomery County

H. C. Detrich 1 W. H. Barnes..NW NE SE 20-10n-2w
S.D. 430 ft.
Cunningham 1 J. Waggoner....SE NE NE 19-11n-5w
Show oil in sand 618-27 ft., S.D. to test.
Thorpe & Grant 2 B. Woods..SW NW NW 32-11n-5w
Good show oil 614 ft., 5-qt. shot 616-20 ft.

St. Clair County

Harris et al 1 City Park.....NW SE 34-2n-9w
Show oil in streaks of sand 1,595-1,629 ft.

Saline County

Parker & Son 1 fee.....NW SW SE 8-10s-5e
Elev. 412 ft., drilling 4,225 ft. in lower Osage.
H. C. Spiller et al 1 Ada Sisk....NE NE NE 15-10s-1e
Drilling 583 ft.

Schuyler County

O. A. Reed 1 S. F. Horney.....NW SW SE 22-3n-2w
Drilling 620 ft.

Tazewell County

Bartelmay 1 Mathis.....SW NW SW 24-25n-3w
Spudded and S.D.

Wabash County

C. Heneipp 1 J. Smith heirs...SW SW SE 15-1n-12w
Glen Dean 1,660 ft., show oil Cypress sand 1,990 ft., slight show oil and water, Benoist 2,130-50 ft., underreaming 5-in. at 2,167 ft.
O'Meara 1 Harris.....SW NW SE 17-1s-12w (cor.)
Drilling 975 ft.

Warren County

Monarch 1 F. Hoadley.....NW NW 11-9n-1w
S.D. 120 ft.

Washington County

Joe Bialock 1 J. W. Heiper....SW SW SW 19-3s-14w
Drilling 910 ft.
Watt 1 Kenterhouse.....NW NW NW 27-2s-4w
Location. First report.

Wayne County

Eason & Weinert 1 C. Bright....N½ NW NE 2-2s-7e
Set 10-in. at 60 ft. First report.

White County

W. C. McBride 1 F. Hon.....SW SE SW 33-3s-14w
McClosky 2,896 ft., squeezed, drilling cement 4 ft. off bottom, T.D. 2,905 ft.
W. M. Angle 1 C. O. Myers.....W½ NW NW 5-5s-9e
Rig.
Carter 1 C. F. Questell.....SW NW SE 2-7s-9e
Benoist 2,830 ft., T.D. 2,865 ft., P.B. to 1,764 ft., pumped 57 bbl. in 16 hrs., testing.
Eason 1 L. Morgan.....N½ SW SE 21-3s-8e
10-in. at 109 ft.
Carl Robinson 1 Taylor.....S½ NW NE 11-5s-9e
Derrick. First report.

Woodford County

Morton O. & G. 1 Moreland ...NW NW SE 31-26n-1e
S.D. 3,148 ft.

East Texas Fields

(Continued from Page 111)

Georgetown lime 3,840 ft., upper Glen Rose 4,500 ft., anhydrite 5,245 ft., base anhydrite 5,398 ft., Pettit lime 5,715 ft., Travis Peak 5,795 ft., total depth 6,126 ft., 1,500,000 cu. ft. gas.

Nacogdoches County

Wildcat: McDaniel 1 Seal, T. J. Johnson Sur., 1½ mi. SE Melrose, dry at 2,565 ft.

Navarro County

Wildcat field discovery: W. W. Lechner 1 Trammell, P. Norton Sur., 151 bbl., ½-in. choke, 2,986-3,015 ft., Woodbine sand.
Wildcat: A. J. Willis 1 Edens, Enoch Fryer Sur., 4 mi. S Corsicana, abandoned location.

Smith County

Chapel Hill field: Shell 1 Kinsey, top Woodbine 3,942 ft., Georgetown lime 4,138 ft., Paluxy sand 5,538 ft., massive anhydrite 7,140 ft., Rodessa section 7,483 ft., Pettit 8,058 ft., 390 bbl. daily, ⅝-in. choke, perf. from 8,056-80 ft., 8,162-78 ft., 8,208-38 ft., total depth 8,291 ft., top Travis Peak 8,263 ft.
Shell-Sun 1 Mosely, top Paluxy 5,580 ft., massive anhydrite 7,150 ft., Rodessa section 7,546 ft., Pettit 8,052 ft., Travis Peak 8,254 ft., 136 bbl. distillate in 18½ hr., ⅝-in. choke., perf. from 8,052-68 ft., 8,157-68 ft., 8,202-28 ft., total depth 8,256 ft.

EASTERN TEXAS DRILLING REPORT

Ellis County

W. E. Butler 1 A. M. Sims, 1 mi. SW Bristol on 8,000-acre block, S.D. 4,055 ft.

Falls County

Joy Carruth 1 Westbrook, Manchaca Sur., 4½ mi. NE of Chilton, set 10-in. at 42 ft., S.D. 735 ft.

Fannin County

H. T. Fleming 1 Welch, E. J. Allen Sur., 4 mi. NW Honey Grove, S.D. 90 ft., moving in material to drill deeper.
Damon Oil 1 A. L. Chaffin, SW cor. 85-acre tract, J. Ketcham Sur., 4 mi. NE Bonham, location cleared, prepare move in materials.

Kaufman County

T. G. Shaw, Tr. 1 Agnes Wynne, B. S. Newman Sur., 8 mi. E Kaufman, lower Trinity test, base Massive 6,255 ft., T.D. 6,454 ft., C.O. to 5,000 ft., prepare resume fishing job.

Limestone County

Frank Bryan 1 F. Bevill, J. H. Murray Sur., 1 mi. SW Horn Hill, top Georgetown lime 2,897 ft., drilling 4,343 ft.

Red River County

J. F. Morrissey 1 Tyler, James Miro Sur., 3½ mi. SE of Bogata, 5,000-ft. test, S.D. 1,873 ft.

Upshur County

H. C. McGahey 1 Ludie Turner, SE cor. 200-acre tract in A. Butler Sur., top Pecan Gap 2,380 ft., base Pecan Gap 2,970 ft., S.D. 4,211 ft.

Wood County

Amerada Pet. 1 J. J. Lloyd, William Barnhill Sur., 7 mi. E Yantis, drilling 5,695 ft.
Bobby Manziel 1 F. M. Morrison, James Pollock Sur., 4 mi. N Hawkins, 10-in. at 100 ft., drilling 4,465 ft.

Van Zandt County

T. G. Shaw 1 D. T. Riley, 100-acre tract in Leander Smith Sur., Glen Rose test, first report.

WELL-STOCKED STORES ... TRAINED PERSONNEL

Jarecki stores have grown steadily in number and in patronage, for three good reasons: They distribute only the most serviceable equipment. They carry adequate stocks, designed to fill every regular and emergency demand in their respective territories. They are manned by carefully trained supply men who study local conditions and make it their business to be of real service to Jarecki customers.

Jarecki service has stood the test of time. The oldest oil country store in the nation which has been in continuous operation, is a Jarecki store. We invite you to call at your nearest Jarecki store and try this time-tested service.

General Offices: St. Louis, Mo. Home Office and Factory: Erie, Pa., U.S.A. Branch Stores at All Important Places in the Oil Country.

Jarecki
MANUFACTURING COMPANY
"Since 1852"

District Offices: Pittsburgh, Pa.; Tulsa and Bartlesville, Okla.; Dallas and Houston, Texas; Mt. Pleasant, Mich.; Centralia, Illinois

Personal Paragraphs

DR. GEORGE B. SOMERS, geophysicist of Dallas, Tex., who recently returned after directing a Socony-Vacuum crew on a trip in Egypt, delivered an address before the Magnolia Young Men's Club in Dallas Monday, October 7.

CLARENCE E. BREHM has resigned as chief geologist for Kingwood Oil Co., which position he held for 3 years, and has opened an office in Mount Vernon, Ill., as consulting geologist and geophysicist. Mr. Brehm also spent 4 years in the production, geological and geophysical departments of the Amerada Petroleum Corp.

A. A. BUCHANAN, drilling contractor and producer of San Antonio, Tex., is recuperating in a San Antonio hospital from a recent illness.

HON. ROBERT LAURIER, of Ottawa, has been named minister of mines for Ontario, succeeding HON. PAUL LEDUC, who recently resigned to accept appointment as clerk of the supreme court of Canada.

REGINALD H. FIELD, senior engineer with United Gas Pipe Line Co., Shreveport, La., won first-place award in home-study course at the American Gas Association convention in Atlantic City last week.

ED W. OWEN, of San Antonio, Tex., secretary-treasurer of the American Association of Petroleum Geologists, addressed members of the West Texas Geological Society last week, on the future of West Texas oil fields.

L. M. GREEN, district sales manager for Texas Co., Dallas, Tex., was the guest of honor at a banquet of the chief accountants from 15 Texas Co. district offices throughout the United States last Thursday in Dallas. Another honor guest was W. F. WILSON, New York, head of all accounting divisions of the company.

W. M. THOMPSON, editor of Shell Progress, house magazine for Shell Oil Co., Inc., this week received the award granted his magazine by the National Safety Council, employes' publication section. The magazine received first prize, awarded on the basis of physical appearance and effectiveness in promoting good industrial relationships, safety and health.

DR. G. S. HUME, of Ottawa, head of the Geological Survey of Canada, was married at Calgary recently to Miss Nellie Alena Carpenter of Brockville, Ont.

J. A. (OSCAR) MEE, was given a rousing send-off by 50 fellow employes at a party commemorating his retirement after 45 years of continuous service with the Standard Oil Co. of California. Mr. Mee joined the company in 1896, advancing to superintendent of the North Spring Street plant at Los Angeles, which position he held until his retirement.

D. O. BARRETT, chief engineer of the Gulf Oil Corp., addressed members of the American Society of Mechanical Engineers and the Engineers' Club of Tulsa October 6, on the subject, "Practical Developments in Oil-Field Equipment."

J. J. FROMMER, general superintendent of the Shreveport division, Ohio Oil Co., has been named to the advisory committee which will act in conjunction with the Cotton Valley Operators Committee on the recycling and pressure-maintenance project in that field.

DALE MYERS, geologist for Stanolind Oil & Gas Co., Tulsa, has been commissioned a second lieutenant with the 137th Infantry of the Kansas National Guard, and will leave the latter part of next month with his unit for Camp Joseph T. Robinson, near Little Rock, Ark., for a year's training.

J. EDGAR PEW and his twin brother, JOHN G. PEW, both of Sun Oil Co., Philadelphia, Pa., are celebrating their birthdays this week at Philadelphia. TOM PEW, son of John G. Pew, and with the General Crude Oil Co., of Houston, Tex., and JOHN G. (JACK) PEW, head of Sun Oil Co.'s Dallas, Tex., offices, both left Texas to attend the birthday celebrations of their fathers.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

An iconoclast observes that the U. S. Bureau of Corporations, which used to have about 70 inspectors on the job of finding out things about the oil industry, has not been heard from since the price of oil was advanced.

The German Government has fixed a maximum price of $10 a barrel on retail sales of illuminating oils, according to a Berlin dispatch. It is reported there is a sufficient supply of all oil products in Germany to last during the coming winter. From these reports it is evident Germany had much larger supplies of oil at the beginning of the war than was believed by her opponents.

20 YEARS AGO

With a daily average production of 106,644 bbl., the Midway-Sunset field in California now leads the nation, having passed Burkburnett, Texas, production, which averaged 67,830 bbl. daily. The Hewitt field was the pacesetter in Oklahoma with 37,000 bbl. daily.

The Gilliland and Gypsy Oil Co. paid $271,000 for a lease on SW¼ Section 25-23-7, Osage County, Oklahoma, at an Indian lease sale in Pawhuska. Second highest price paid at the sale was $251,000 by National Exploration Co. for SW¼ Section 4-26-6, Burbank area. Total bonuses paid at the sale were $3,993,250.

10 YEARS AGO

Constitutionality of the Oklahoma proration law was upheld in a decision of the state Supreme Court in a case in which the C. C. Julian Co. had sought to prohibit the Corporation Commission from interfering with the company's production in the Oklahoma City field.

Those who have been pessimistic about the C. M. Joiner Woodbine sand discovery in Rusk County, Texas, are beginning to admit that the wildcat no doubt is the forerunner of many other producers around it.

GEORGE FREEMAN, electrical engineer, Dallas, Tex., addressed members of the Petroleum Electric Luncheon Club recently in Shreveport, La.

M. W. CONN, vice president of Perco, Inc., was the principal speaker at the regular monthly meeting of the Ark-La-Tex chapter, Western Petroleum Refiners Association, in Shreveport, La., last week.

GEORGE GRANGER BROWN, University of Michigan, Ann Arbor, will deliver a paper entitled "Deviation of Natural Gas From Boyle's Law" at the American Recycling Association in Kingsville, Tex., November 6.

W. A. MONCRIEF, Fort Worth, Tex., oil operator, has been named general chairman of the Texas Mid-Continent Oil and Gas Association convention commemorating the forty-fifth anniversary of the discovery of oil in Texas.

DR. HAL P. BYBEE, chief geologist for University of Texas lands, Austin, Tex., and chairman of the department of geology at Texas University in Austin, is offering at the university this year special courses in the study of the nation's wartime mineral needs, stressing courses in mineralogy and petrology.

JAMES A. LEWIS, geophysicist and geologist with Core Laboratories, Inc., Dallas, Tex., delivered an address before the Dallas Petroleum Geologists Society Monday evening, October 7, in Hyer Hall on the campus of Southern Methodist University in Dallas. He discussed the application of core analyses to production methods.

P. B. KELLOGG has been appointed sales manager of Rothschild Oil Co. now operating its new cracking plant at Santa Fe Springs, Calif.

GLEN RUBY has arrived in California from Argentina and will remain in the United States for several weeks before returning to his headquarters in South America.

E. P. TALLANT, of the Union Oil Co. of California staff, has returned to California after doing extensive economic research work in the Rocky Mountain area.

LAWRENCE HIGGENBOTHAM has joined C. W. Teater of Mount Pleasant, Mich., as drilling superintendent, replacing J. R. (DOC) MARTIN who recently resigned to devote his full time to development of some Huron County leases.

E. L. WILSON, vice president of P. & W. Oil Co., Dallas, Tex., has been named captain of the Dallas golf team which will attempt to regain the golf championship for Dallas of the Texas petroleum industry. The occasion will be the golf tournament held in connection with the Texas Mid-Continent Oil and Gas Association meetings.

WALTER H. SPEARS, district manager of the United Gas Pipe Line Co., with headquarters at Houston, Tex., has been transferred to the company's general offices at Shreveport, La., as head of the geological department of the Union Producing Co., an affiliated company. E. M. SMITH, chief dispatcher and superintendent of the telephone and telegraph department at Shreveport, is being transferred to Houston as district manager to succeed Mr. Spears.

Economics Chief

Stuart P. Coleman is another Humble Oil & Refining Co. man who has joined the parent company, Standard Oil Co. of New Jersey. Mr. Coleman, who went to New York in 1933, is now director of the recently organized department of economics, which functions in the main office of the company in Rockefeller Center.

STUART P. COLEMAN

Mr. Coleman began his career in the Standard organization 20 years ago. His first occupation in the oil industry was that of a laboratory assistant in the Baytown, Tex., refinery of Humble. Following a leave of absence in the fall and winter of 1923-24, during which he completed post-graduate work in chemical engineering, he returned to the Baytown refinery in the summer of 1924 as manager of its development department.

He left Baytown in 1925, when he went to Houston as manager of the technical service and development department of the Humble company there. He remained in Houston until 1933, when he moved to New York to become a member of the Standard Oil Co. of New Jersey coordination committee as a manufacturing representative.

The department now headed by Mr. Coleman includes the group of statisticians and map men who were under the direction of the recently retired E. P. Salisbury. Its function is to gather, analyze, and distribute information and statistics vital to the company's affairs.

ROY L. WARREN, of Toronto, has been elected a director of the Union Gas Co. of Canada, Ltd.

D. W. HARRIS, vice president of Arkansas Louisiana Gas Co., Shreveport, La., has been elected director of the American Gas Association for a 2-year term.

C. C. TOOMEY, president, Midco Oil Corp., Tulsa, has been elected lieutenant governor of the tenth district of the Oklahoma-Texas region of Kiwanis International.

WALDO SHELDON, general manager of the South American operations of Socony-Vacuum Oil Co., Inc., and Mrs. Sheldon sailed for South America last week on the Grace liner Santa Paula.

ARTHUR F. BRIDGE, vice president and general manager of Southern Counties Gas Co., was elected a director of the American Gas Association at the annual meeting of the association held in Atlantic City last week.

J. B. RAY, consultant engineer on corrosion, was the speaker before the Panhandle chapter of the American Petroleum Institute's October meeting in Pampa, Tex., October 14. GEORGE BERLIN, Pampa, chairman of the Panhandle chapter, presided at the meeting.

J. O. LEWIS, petroleum engineer, is preparing to return to the United States from Trinidad, British West Indies, where he has been engaged in appraising properties of Trinidad Leaseholds, Inc. On his return he will open an office in Houston, Tex. In recent years Mr. Lewis has carried on operations from Tulsa through the partnership of Dunn & Lewis.

F. A. KAHLMAN, with Shell Oil Co., Inc., at Buenos Aires, Argentina, is in the United States for a study of operations in southwestern states.

BART DeLAAT, division engineer for Pure Oil Co., Olney, Ill., and ROBERT SULLIVAN, division engineer for Carter Oil Co., Mattoon, Ill., will deliver addresses at the ceremony dedicating the new engineering building at the University of Illinois. Mr. DeLaat will talk on recent advances in drilling while Mr. Sullivan will talk on pressure maintenance.

Shifts: F. H. HARRINGTON, engineer, Magnolia Petroleum Co., from Olden, Tex., to Kermit, Tex.; EDMUND A. COBB, engineer, Sun Oil Co., from Beaumont, Tex., to Dallas, Tex.; E. D. WATSON, engineer, Shell Pipe Line Co., from Henderson, Tex., to Douglass, Tex.; J. E. WALKER, geologist, Shell Oil Co., Inc., from Orange, Tex., to Athens, Tex.; M. H. CHRISTENSEN, geologist, Seismic Explorations, Inc., from Brookhaven, Miss., to Columbia, Miss.; E. I. HEAD, engineer, Gulf Oil Corp., from Clarksdale, Miss., to Columbus, Tex.; J. C. JACKSON, geologist, Stanolind Oil & Gas Co., from Hattiesburg, Miss., to Winnfield, La.; R. N. DUNCAN, purchasing agent, Shell Oil Co., Inc., from New York City, to Garden City, Long Island, N. Y.; POWELL A. DENNIE, engineer, Shell Oil Co., Inc., from Wichita, Kans., to McPherson, Kans.; L. M. WILSHIRE, geologist, Skelly Oil Co., from Auburn, Neb., to Rockport, Mo.; B. F. BROUSSARD, geologist, Independent Exploration Co., from Vicksburg, Miss., to Forest, Miss.

W. C. BRADY, L. B. BRADY and A. G. BRADY, all of Corpus Christi, Tex., have organized the Santa Vera Drilling Co., with headquarters at Corpus Christi.

ROBERT WRIGHT STEWART, director of the American Petroleum Institute and former chairman of the board of Standard Oil Co. of Indiana, arrived in Los Angeles this week and has departed to spend a vacation on the ranch of his son, R. G. STEWART, near Camarillo, in Ventura County.

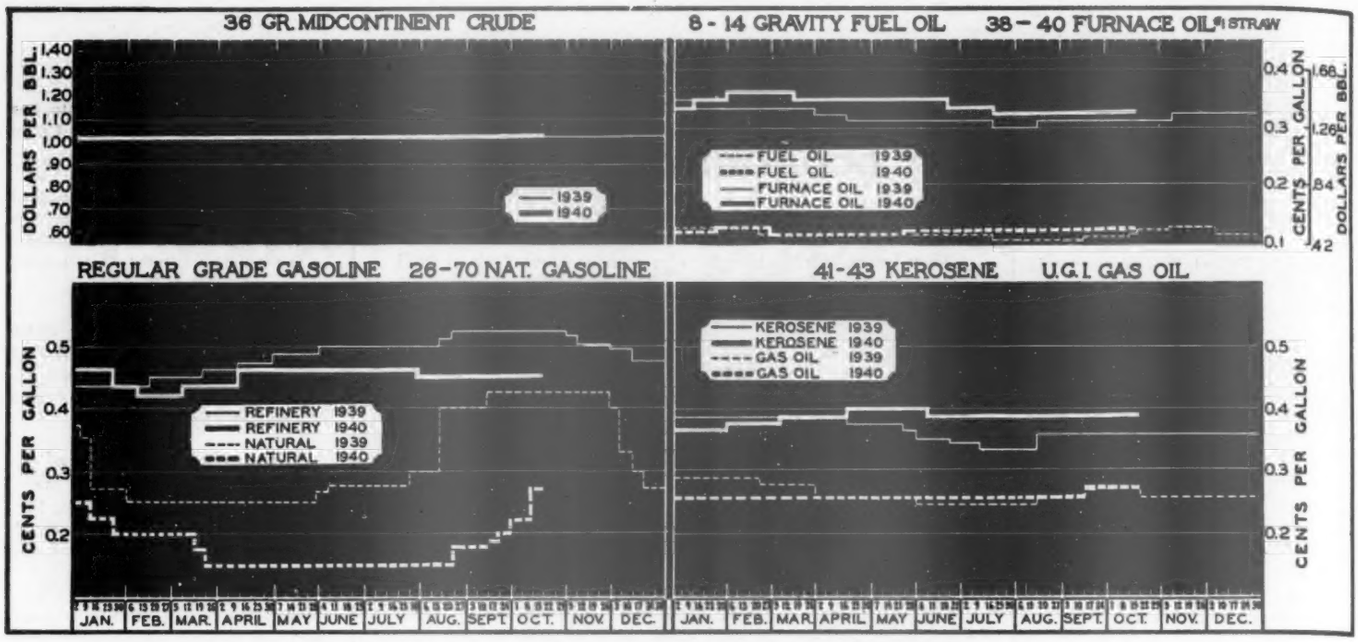
CHESTER NARAMORE, secretary of the Petroleum Division of A.I.M.E., arrived in Los Angeles several days ahead of the fall meeting of the Pacific section, A.I.M.E., and while he will leave shortly after conclusion of the meeting he will not be back in his New York office for another 2 weeks. Mr. Naramore was principal speaker at the latest meeting of the Petroleum Engineering Club of Texas A. & M. College.

HILERY HEBERT and SIDNEY SMITH, independent operators of Houston, Tex., left last week for a business and pleasure trip to New York.

GAIL F. MOULTON, petroleum geologist, has announced the opening of his offices in the Russ Building, San Francisco, Calif., and in Mountain Lakes, N. J.

G. F. O'BRIEN, formerly with Magnolia Petroleum Co. in its Oilton, Okla., office, is the new superintendent of production for the company at its Electra, Tex., office. He succeeds T. B. GILBERT, who recently retired after 25 years with the company. JOE BORDEN, production foreman, is being transferred from Olden to Olney, Tex., to replace JOE DAVIS, who is being sent to Odessa, Tex.

R. L. MILLIGAN, assistant secretary of Pure Oil Co., has been named chairman of the petroleum division of the Community Fund of Chicago. Assisting him as advisory committee are RAWLEIGH WARNER, Pure vice president; SHELDON CLARK, vice president, Sinclair Refining Co.; ALLAN JACKSON, vice president, Standard Oil Co., and BYRON S. REID, general manager Chicago division, Socony-Vacuum Oil Co., Inc.



Representative Mid-Continent Quotations on Crude Oil and Refined Products. Basis Oklahoma (Group 3)

Prices Advanced on Light Fuel Oils And Natural Gasoline in Group 3

By H. STANLEY NORMAN

PRICES for natural gasoline and the lightest fuel oils moved forward this week under the stimulation of increased demand from the north central states and from the Gulf Coast. Supplies of natural gasoline are fairly tight and those in the industry feel that another advance in quotations may be instituted in the near future.

Range oil and prime white distillate gained fractionally and conditions in the kerosene market at the present quotations are considered strong. The fall plowing season in the farming belt will continue for 3 or 4 weeks, indicating that demand for tractor fuels will continue strong for at least that length of time.

Refinery Gasoline Unchanged

Refinery gasoline is without feature. Shipping instructions from contract customers are holding up well. Spot buying remains abnormally high for the season. Refiners are particularly grateful for the continuation of increased demand in view of the nation's stock position. National motor-fuel stocks are nearly 11,000,000 bbl. greater than a year ago.

There is no prospect that refinery gasoline prices can be revived in the season of lowest consumption which will extend through next March. Chances are good, however, that the refining industry may temporize its normal practice of accumulating motor-fuel stocks. The prospects are based primarily on the statistical position of distillate-fuel stocks which many observers now consider sufficiently high to eliminate ills of last winter. There is the possibility, if the backlog of distillate-fuel stocks is adequate, that refinery operations may be balanced against winter gasoline demand.

The practice of manufacturing sufficient distillate fuels to meet demand in the past winter without regard for increment of motor fuel was the heart of trouble which plagued the market for many months.

Several manufacturers of natural gasoline now believe that the Oklahoma (Group 3) market will reach a ceiling of at least 3 cents. At the current quotation of 2⅞ cents the market is strong and supplies are strictly limited.

The North Texas market has again drawn abreast of the Oklahoma quotations in narrowing the gap to the normal spread of 0.25 cent per gallon. Texas manufacturers of natural gasoline are shipping substantial quantities at the present time to Gulf Coast refiners. Improvement in the coastwise demand for winter motor fuel has caused the stimulation in the natural-gasoline market on the Gulf. Customers in the north are ordering out winter motor fuel for delivery in advance of freezing temperatures which will make movement impossible over many of the inland waterways. Release of the pressure from Texas natural gasoline because of freer movement to the Gulf has permitted the Oklahoma market to move higher. Currently, northern demand is exceeding supplies freely available in Oklahoma and Kansas, causing an overflow of buying into the North Texas area.

All Fuels Active

All grades of fuel oil are active on the Chicago market. The current range of distillate-fuel quotations is considered well in line with a majority of spot transactions. A few carloads of material may be found at prices slightly below quotations but an equal supply is held for higher bids. Several refiners are still declining to offer on the spot market and are continuing their recent policy of running all current production to storage and holding against the advance generally anticipated in the near future.

Scattered sales of refinery gasoline have been reported at figures below the prices quoted. In most cases the gasoline involved was slightly below standard specifications and in those instances refiners expect to make concessions.

The impression is growing that the defense program will exert an important influence this winter on the fuel-oil market.

There is no evidence at hand, however, when the Government will start storing fuel oils and gasoline. After making preliminary preparations for buying and storing large quantities of aviation gasoline and navy fuel oil the program has bogged down in ramifications of bureaucratic authority.

Refined Oil Market Barometer

Improvement in fuel-oil demand and prices is this week's outstanding feature of petroleum markets. Coastwise movement of refinery gasoline continues at the prewinter rate causing at least a temporary stiffening of conditions on the Gulf. Natural-gasoline prices in Group 3 territory have advanced 0.25 cent.

MID-CONTINENT. Refinery gasoline is unchanged. Light fuels are ⅛ cent higher.

GULF COAST. Coastwise movement of gasoline has temporarily relieved pressure on the Gulf.

CALIFORNIA. Improved demand for fuels continues. Gasoline is drifting in a dull market.

PENNSYLVANIA. Wax gained ¼ cent. Neutrals and bright stocks moving or, a brisk market.

CHICAGO. Fuel oils continue their improvement displayed over the past few weeks. Gasoline is unchanged.

Motor-Fuel Prices on East Coast Resist Pressure of High Stocks

By J. P. O'DONNELL

NEW YORK, Oct. 15.—There were no changes among the major products in the eastern refined market during the past week as gasoline maintained its resistance to the pressure of high inventories and fuel oil remained unaffected by the demand of the early consuming season. Both remained reasonably firm with 72-74-octane material reported unobtainable at less than 5 cents in tank cars and No. 2 fuel oil holding at the established price of 4.1 cents per gallon in tank cars.

Contributing to the comparatively firm gasoline price is a seasonally good demand and increasing Gulf-to-north-of-Hatteras tanker rates. An additional fact to be considered is that present gasoline prices are low. The continued good demand is credited with accounting for the 0.1 to 0.2-cent advance in tank-wagon and tank-car prices by Socony-Vacuum in the New York and New England area on October 7.

Retail conditions in this area remain disturbed, however. The situation has become so critical in Maine that one group of retailers has petitioned the state to take over the supervision of gasoline sales in that state. A spokesman for the group said that retail conditions in Maine were "deplorable" and that the step had been taken "in an attempt to remedy drastic conditions prevailing throughout the state."

The depressed condition of retail markets was further indicated in the monthly report of the American Petroleum Institute on retail prices. This report pointed out that the average retail price in 50 representative cities of the country was 12.20 cents on October 1 compared with 12.33 cents on September 1 and 13.52 cents on October 1 last year. Including state and federal taxes, the average cost to the consumer on October 1 was 18.10 cents against 18.23 cents on September 1 and 18.94 cents a year ago, the report adds.

The statistical position of gasoline on the East Coast continues to improve. Stocks were reported at 19,848,000 bbl. on October 5 against 20,804,000 bbl. on September 28, a decrease of almost 1,000,000 bbl. This improvement is attributed to the continued good demand and to the fact that production has been substantially curtailed, runs to stills in the East Coast district averaging 10 per cent below midsummer levels for the second successive week. The reduction in inventories has been a contributing factor to the maintenance of current prices.

With demand for heating-oil light due to mild weather, the comparative firmness of the present market is due in a large measure to the improved tanker rates. Stocks of distillate fuel oil in the districts supplying the eastern consuming area are continuing to mount, adding another 566,000 bbl. in the last week for which data are available. The substantial increases in tanker rates have not been sufficient to result in higher fuel-oil prices and it is expected that the price will not improve until normal winter demand begins.

Tanker rates in the past week were generally 1 cent higher than at the end of the previous week. This is in contrast to the advances which averaged 4 cents per barrel in the previous week. Some marine interests expressed the opinion that the slowing down in the rate of advance in the past week indicates that rates have reached at least a temporary peak. Their belief was based on the fact that currently ample supplies of heating oil on the East Coast will result in reduced movement from the Gulf to north-of-Hatteras points this winter. Reported last paid rates at the end of the week were 26 cents per barrel for gasoline, 27 cents for kerosene and 28 cents for No. 2 fuel oil. The surge in tanker rates reduced the number available for charter and inquiries for November loading are reported.

Both kerosene and Bunker C fuel oil were reported in good demand last week but prices of 4.8 cents per gallon for kerosene and quotations ranging from $1.15 to $1.25 for Bunker C fuel oil were unchanged. Despite the general report of fair demand for Bunker C, there was one report that the price may be reduced. The same source expressed a belief that light fuel-oil prices would advance in the near future.

Both white and yellow grades of crude-scale wax remain in good demand in the eastern area and prices have been advanced to 2.625 cents per pound on 124-126 white scale and to 2.75 cents per pound for 124-126 yellow scale. This makes an advance of close to 1 cent in these prices since the midsummer lows. Fully refined grades are unchanged, ranging from 5.6 cents for 123-5 A.m.p. grades to 6.4 cents for 135-7 grades, prices which are in effect in both the export and domestic markets.

Pennsylvania lubricating oils were reported unchanged from levels which have held for several months. There were reports of continued good movement against contracts but these movements have been sufficient only to maintain current prices. The lone outstanding feature of the Pennsylvania market in the past few weeks has been the steady advance in wax quotations. Wax prices at Pennsylvania refineries are reported from 2.625 to 2.75 cents per pound.

Substantial changes in the eastern market apparently will be deferred until the industry emerges from the transition stage between the gasoline and fuel-oil consuming seasons. With exports substantially curtailed, domestic factors completely control the market at present. The only unusual export activity reported is that of shipments of gasoline to Japan which are reported to be unusually heavy from Gulf Coast ports. The static condition of the export market is indicated by the steady foreign-tanker rates which have been unchanged for some time.

Gulf Coast Markets

HOUSTON, Tex., Oct. 15.—The Gulf Coast gasoline market still is feeling the effect of the extensive buying that was done out of this district earlier in the month. Consequently, although no additional purchases were made the past week, prices continued firm. Firmness also was displayed throughout practically the entire coastal market structure with the possible exception of neutral oils and Bunker C fuel.

A check of recent gasoline buying indicated that upwards of 1,500,000 bbl. of material was purchased. Movement already has been started and practically all the material is to be taken out before the close of the month. Purchasers included a half dozen of the major companies, which will move most of the gasoline to the East Coast.

Corpus Christi refiners, from whom most of the gasoline was purchased, are most benefited as their stock situation generally was considered the most critical. With this relief, sellers have been able to tighten quotations. There still has been no advance in top quotations but the low side of the market is up around ⅛ cent from some sources.

Buying of the material involved in the recent trading started around 3⅝ cents for 70-72-octane grades, with prices being run up to 3¾ cents to 3⅞ cents.

Several sizable contracts for No. 2 fuel and other burning oils were reported in the making.

A.P.I. Weekly Refinery Statistics

Week Ended October 12, 1940

	Capacity reporting (per cent)	Total gasoline stocks (bbl.)	Residual fuel-oil stocks (bbl.)	Gas oil and distillate stocks (bbl.)	Daily crude runs (bbl.)
East Coast	100.0	19,519,000	12,803,000	18,254,000	571,000
Appalachian	91.0	3,283,000	566,000	610,000	115,000
Ind., Ill., and Ky	90.2	13,770,000	3,587,000	5,728,000	584,000
Okla., Kans., and Mo.	76.9	6,247,000	2,254,000	1,571,000	246,000
Inland Texas	59.6	1,525,000	1,562,000	388,000	129,000
Texas Gulf	89.2	13,150,000	8,246,000	8,589,000	826,000
Louisiana Gulf	97.6	2,649,000	1,782,000	1,356,000	107,000
N. Louisiana and Ark.	51.5	470,000	534,000	335,000	42,000
Rocky Mountains	56.0	921,000	405,000	128,000	57,000
California	87.3	15,453,000	74,773,000	10,489,000	537,000
Total reported	86.2	76,987,000	106,514,000	47,448,000	3,214,000
Est. unreported	.....	4,940,000	1,935,000	1,295,000	341,000
*Est. total	.....	81,927,000	108,449,000	48,743,000	3,555,000
*Est. total previous wk.	.....	82,256,000	107,964,000	48,187,000	3,555,000
*October 13, 1939	.....	71,893,000	114,087,000	38,894,000	3,580,000

*Bureau of Mines.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended October 5, 1940	263,551,000 barrels
Week ended September 28, 1940	264,609,000 barrels
Week ended October 17, 1939	231,564,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

RETAIL OIL MARKETS...

Tank-wagon and filling-station prices on gasoline and kerosene furnished by larger marketing firms

Prices as of October 15, 1940

Taxes

The gasoline quotations given in the following tables include the 1½-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Chicago, Ill.	15.6	13.6	4.5	10.0
Decatur	14.6	13.1	4.5	9.5
Joliet	15.6	14.1	4.5	10.0
Peoria	15.6	13.2	4.5	10.0
Quincy	15.4	13.9	4.5	9.8
Davenport, Ia.	15.6	14.1	4.5	‡10.0
Des Moines	15.4	13.9	4.5	‡9.8
Mason City	15.8	14.3	4.5	‡10.2
Duluth, Minn.	16.4	14.9	4.5	10.8
Mankato	16.0	14.5	4.5	9.0
Minneapolis	16.0	14.2	4.5	10.4
LaCrosse, Wis.	17.0	15.5	5.5	10.4
Green Bay	17.4	15.9	5.5	10.3
Milwaukee	16.8	15.3	5.5	10.2
Detroit, Mich.	14.1	12.6	4.5	7.6
Grand Rapids	13.2	11.2	4.5	9.0
Saginaw	14.9	13.4	4.5	9.1
Evansville, Ind.	16.6	15.1	5.5	†9.8
Indianapolis	16.8	14.8	5.5	†10.0
South Bend	16.8	15.3	5.5	†10.0
Fargo, N. D.	18.2	16.7	5.5	11.6
Huron, S. D.	17.5	16.0	5.5	10.9
Kans. City, Mo.*	14.8	13.3	4.5	8.0
St. Louis*	15.2	13.2	4.5	9.0
St. Joseph	14.9	13.0	4.5	7.9
Wichita, Kans.	13.8	12.3	4.5	7.0

*State tax 2 cents, 1-cent city tax, and 1½-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective Oct. 7, 1940, f.o.b. Chicago, tank-wagon prices: Standard heater oil, 1-99 gal., 8.75 cents; 100-149 gal., 7.75 cents; 150 gal. and over, 7.25 cents. Stanolex fuel oil No. 1, 1-99 gal., 8.5 cents; 100-149 gal., 7.5 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex furnace oil, 1-99 gal., 8.5 cents; 100-149 gal., 7.5 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex fuel oil A, 1-399 gal., 5.75 cents; 400-799 gal., 4.75 cents; 800 gal. and over, 4.5 cents. Stanolex fuel oil B, 1-399 gal., 5.75 cents; 400-799 gal., 4.75 cents; 800 gal. and over, 4.5 cents. Stanolex Bunker C fuel oil, 1-999 gal., 4.5 cents; 1,000 gal. and over, 3.5 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline Cons'r tank wag.	Dlr. vided dlr.	Incl. tax	Kero. tank wag.
Ohio points	16.0	15.0	5.5	*9.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Atlantic City	11.00	12.60	4.5	7.4
Newark	11.00	12.60	4.5	7.4
Annapolis, Md.	13.35	14.35	5.5	9.5
Baltimore	12.75	13.75	5.5	8.5
Cumberland	14.15	15.15	5.5	10.0
Washington, D.C.	11.00	12.00	3.5	9.5
Danville, Va.	14.95	17.45	6.5	11.0
Norfolk	13.75	16.25	6.5	10.5
Petersburg	14.05	16.55	6.5	11.2
Richmond	14.05	16.55	6.5	10.5
Roanoke	15.25	17.75	6.5	11.0
Charles'n, W. Va.	14.55	17.05	6.5	12.6
Parkersburg	13.85	16.35	6.5	11.2
Wheeling	14.85	17.25	6.5	11.8
Charlotte, N. C.	16.90	17.00	7.5	11.8
Hickory	17.45	18.95	7.5	12.3
Mount Airy	17.30	18.80	7.5	12.2
Raleigh	16.65	16.50	7.5	11.5
Salisbury	16.95	16.00	7.5	11.9
Charleston, S. C.	14.75	17.25	7.5	9.75
Columbia	15.60	18.10	7.5	11.5
Spartanburg	16.30	18.80	7.5	12.7

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at a time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery; 100,000 gal. per year, consumer tank-car price plus 0.5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less 0.5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less 0.5 cent per gallon. The above policy also applies in South Carolina, effective January 23, 1939.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline Cons'r tank wag.	Net dlr.	incl. tax	Kero. tank wag.
Atlanta, Ga.	15.0	15.0	7.5	8.0
Augusta	17.0	17.0	7.5	9.5
Macon	15.0	15.0	7.5	9.0
Savannah	16.0	16.0	7.5	9.0
Birmingham, Ala.	16.0	16.0	8.5	9.0
Mobile	15.5	15.5	9.5	8.0
Montgomery	18.5	18.5	9.5	10.0
Jackson, Miss.	16.0	16.0	7.5	9.0
Vicksburg	16.0	16.0	7.5	8.5
Jacksonville, Fla.	15.0	15.0	8.5	8.0
Miami	15.5	15.5	8.5	8.0
Pensacola	17.5	17.5	9.5	8.0
Tampa	15.0	15.0	8.5	9.0
Lexington, Ky.	15.5	15.5	6.5	9.0
Covington	13.5	13.5	6.5	9.0
Louisville	15.0	15.0	6.5	8.5
Paducah	14.0	14.0	6.5	8.5

Price basis to tank-wagon consumers, effective January 4, 1937, 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax, and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Philadelphia, Pa.	12.5	13.5	5.5	10.0
Pittsburgh	13.0	15.0	5.5	10.5
Allentown	13.0	14.5	5.5	10.5
Erie	12.5	15.0	5.5	10.0
*Scranton	12.5	14.25	5.5	10.5
Altoona	13.0	15.0	5.5	10.5
Dover, Del.		14.0	5.5	10.5
Wilmington		13.5	5.5	10.0

Price basis to undivided dealers, dealer tank-wagon price less 0.5 cent per gallon.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

*Voluntary discount of 1 cent allowed to dealers only.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline Tank truck	Serv. sta.	Incl. tax	Kero. tank wag.
San Francisco	16.5	17.5	4.5	11.5
Los Angeles	16.0	17.0	4.5	10.0
Fresno, Calif.	17.5	18.5	4.5	12.5
Phoenix, Ariz.	20.5	21.5	6.5	*17.5
Reno, Nev.	19.5	20.5	5.5	13.5
Portland, Ore.	19.0	20.0	6.5	13.5
Seattle, Wash.	19.0	20.0	6.5	13.5
Spokane	20.5	21.5	6.5	16.5
Tacoma	19.0	20.0	6.5	13.5

*Includes 5-cent state tax.

Discount to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck, and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Albany	11.5	12.5	5.5	7.3
*Met. New York, Manhat., Bronx, Queens, Brklyn., Staten Island	11.7	12.7	5.5	7.6
Buffalo	12.3	13.4	5.5	7.5
Rochester	12.0	13.8	5.5	8.1
Syracuse	11.9	11.7	5.5	8.2
Portland, Me.	11.0	11.7	5.5	7.4
Manchester, N.H.	12.1	12.5	5.5	8.5
Burlington, Vt.	12.2	12.3	5.5	7.9
Boston, Mass.	10.2	10.5	4.5	7.7
Worcester	10.5	11.5	4.5	7.8
Hartford, Conn.	10.8	11.5	4.5	7.5
New Haven	10.6	11.0	4.5	7.9
Providence, R. I.	9.9	11.4	4.5	7.7

*Does not include 2 per cent city sales tax, which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective August 8, 1940, the company changed its commercial consumer policy in New York and New England to the following:

Full compartment deliveries: Accounts buying less than 20,000 gal. annually, 0.5 cent above the commercial-consumer price; accounts buying from 20,000 to 120,000 gal. annually, commercial-consumer price; accounts buying 120,000 gal. annually and above, 0.25 cent off consumer price. Split compartment deliveries: Delivery of less than a full compartment, 250 gal., commercial-consumer price plus 1 cent. Steel-barrel deliveries: Commercial price plus 3 cents.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Incl. tax	Kero. tank wag.
Denver, Colo.	14.5	5.5	10.5
Grand Junction	16.5	5.5	12.5
Pueblo	15.5	5.5	9.0
Casper, Wyo.	16.5	5.5	11.5
Cheyenne	14.5	5.5	11.0
Billings, Mont.	17.5	6.5	12.0
Butte	15.5	6.5	13.0
Great Falls	17.5	6.5	12.0
Helena	15.5	6.5	12.5
Salt Lake, Utah	16.0	5.5	14.0
Boise, Idaho	†18.6	6.5	16.0
Twin Falls	19.6	6.5	16.5
Albu'que, N. M.	*16.0	6.5	9.5
Roswell	14.0	7.0	8.0
Santa Fe	17.0	7.0	9.5

*Includes city tax of 0.5 cent. †Includes state tax of 1 mill.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
New Orleans, La.	14.25	16.75	8.5	†11.0
Baton Rouge	15.25	17.75	8.5	‡10.5
Alexandria	15.25	17.75	8.5	‡10.5
Lafayette	15.50	18.00	8.5	‡10.0
Lake Charles	15.25	17.75	8.5	‡10.0
Shreveport	14.00	16.50	8.5	‡9.0
Knoxville, Tenn.	18.50	20.00	8.5	12.5
Memphis	16.50	18.00	8.5	11.0
Chattanooga	18.00	17.35	8.5	12.0
Nashville	17.50	16.50	8.5	11.0
Bristol	18.75	18.75	8.5	12.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

†Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Incl. tax	Kero. tank wag.
Texarkana, Ark.	13.5	5.5	6.0
Fort Smith	12.5	5.5	6.5
Little Rock	16.0	8.0	8.0
Muskogee, Okla.	13.5	5.5	7.0
Oklahoma City	11.5	5.5	6.5
Tulsa	12.5	5.5	6.0

Tank wagon represents price to consumers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Omaha	17.4	15.9	6.5	9.5
McCook	17.5	15.4	6.5	9.9
Norfolk	17.5	15.4	6.5	9.9
North Platte	17.8	15.5	6.5	10.2
Scottsbluff	18.4	16.0	6.5	10.8

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Texas

	Gasoline Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Dallas, Tex.	11.5	15.5	5.5	6.0
Fort Worth	11.5	15.5	5.5	7.0
Houston	12.0	16.0	5.5	8.0
San Antonio	12.5	17.0	5.5	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Gasoline Tank wag.	Incl. tax	Kero. tank wag.
Halifax, N. S.	24.5	10.0	18.0
St. John, N. B.	24.5	10.0	18.0
Montreal, Que.	24.0	8.0	16.5
Toronto, Ont.	24.5	8.0	17.0
Hamilton, Ont.	24.5	8.0	17.0
Winnipeg, Man.	27.5	7.0	22.5
Brandon, Man.	28.9	7.0	22.5
Regina, Sask.	25.0	7.0	20.0
Saskatoon, Sask.	28.0	7.0	23.0
Edmonton, Alta.	25.9	7.0	20.0
Calgary, Alta.	23.0	7.0	18.0
Vancouver, B. C.	21.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In Maritime Provinces both divided and undivided dealers pay tank-wagon price.

Tank-Wagon Changes

Continental Oil Co. increased the tank-wagon price of regular gasoline 1 cent per gallon, effective October 1, at Denver, Colo., Butte and Helena, Mont. Effective September 30, the company reduced the tank-wagon price on regular gasoline at Twin Falls, Idaho, 2 cents per gallon. The advance at Butte and Helena was rescinded October 10. Fort Smith, Ark., was reduced a cent October 7.

Standard Oil Co. of Nebraska reduced the dealer tank-wagon price of regular gasoline 0.3 cent September 24 at McCook, Neb.

Standard Oil Co. of Kentucky reduced the dealer and tank-wagon price of regular gasoline 1 cent at Atlanta and Macon, Ga., effective September 26.

PRICES OF REFINED PRODUCTS...

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of October 15, 1940

The quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils. Octane ratings in Middle West, Mid-Continent, and Southwest are based on A.S.T.M. method of testing.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:

72-74 octane (regular)	.04½	.04¾
63-66 octane	.04	.04¼
60 octane and below	.03½	.03¾
60-62 400 grades:		
72-74 octane (regular)	.04½	.04¾
63-66 octane	.04	.04¼
60 octane and below	.03½	.03¾

NORTH TEXAS—

U. S. Motor grades:

72-74 octane (regular)	.04½	.04¾
63-66 octane	.04	.04¼
60 octane and below	.03½	.03⅞
60-62 400	.03½	.03⅞

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:

72-74 octane (regular)	.04¾	.05
63-66 octane	.04¼	.04½
60 octane and below	.03⅞	.04⅛

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:

72-74 octane (regular)		.04¾
60 octane and below		.04

CHICAGO (Based on Group 3)—

U. S. Motor grades:

72-74 octane (regular)	.04⅝	.04⅞
63-66 octane	.04¼	.04½
60 octane and below	.03⅞	.04⅛
60-62 400 grades:		
72-74 octane (regular)	.04⅝	.04⅞
63-66 octane	.04¼	.04½
60 octane and below	.03⅞	.04⅛

PENNSYLVANIA (inland refineries)—

74-76 octane (regular)		.06
72-74 octane		.05¾

CALIFORNIA (domestic movement)—

58-60 400, 65 oct. and higher	.05½	.07¼
54-58 U. S. Motor	.04½	.06¼

EAST COAST (domestic)—

U. S. Motor grades:

New York (Bayonne)*	.05	.06½
Philadelphia	.05¾	.06½
Boston	.05¼	.05½
Baltimore	.05½	.07
Charleston, S. C.	.05¾	.07

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:

72-74 octane	.04	.04¼
70-72 octane	.03⅞	.04¼
68-70 octane	.03¾	.04
65-67 octane	.03⅝	.04

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.02¾
Grade 18-55		.03¼

NORTH TEXAS—

Grade 26-70		.02½
Grade 18-55		.03

CALIFORNIA—

75-85 375-390	.04½	.05¼

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.02⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110-flash, 540-550 e.p.	.03½	.03⅝
41-43 gr., 300-320 l.b.p., 110-125 flash, 500-520 e.p.	.03⅝	.03¾
46-48 gr., 210-230 l.b.p., 480-max., e.p.	.03⅞	.04

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

42-44	.03⅞	.04
41-43	.03¾	.03⅞

NORTH TEXAS—

41-43	.03¾	.03⅞

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.03¾	.04

ARKANSAS (Ark. and N. La. del.)—

41-43		.04¼

PENNSYLVANIA (inland refineries)—

46	.04⅞	.05
45	.04¾	.05

CHICAGO (Based on Group 3)—

42-44	.04	.04¼
41-43	.03⅞	.04⅛

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04½	.05½

NEW YORK (Bayonne, N. J.)—

41-43		.048

GULF COAST (domestic)*—

41-43		.04

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅝	.03¾
No. 1 prime white, 38-42	.03½	.03⅝
No. 1 straw, 38-40	.03¼	.03⅜
No. 2 straw, 32-36	.03¼	.03⅜
No. 3 zero to 10, 28-32	.03⅛	.03¼

NORTH TEXAS—

No. 1 prime white, 38-42		.03½
No. 1 straw, 38-40		.03⅜

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03	.03⅛

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36	.03⅛	.03½

CHICAGO (Based on Group 3)—

Range oil	.03½	.03¾
No. 1 prime white, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03¼	.03½
No. 3, zero to 15, 28-32	.03⅛	.03⅜

NEW YORK (Bayonne, N. J.)—

*No. 1		.048
*No. 2		.041
*No. 4		.041

Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.02¾	.03
No. 5, low pour point, 18-22	.72½	.77½
No. 6, 15 and above, 8-14	.50	.55

NORTH TEXAS—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5 low pour point, 18-22	.72½	.77½
No. 6, 15 and above, 8-14	.50	.55

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial		.70

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02¾	.03
No. 5, low pour point, 18-22	.75	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.50	.55

PENNSYLVANIA (inland refineries)—

36-40	.04	.04½

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.10	1.25
24 plus diesel, per bbl.	1.10	1.25
24 plus diesel (bunkers)	1.20	1.35
12-16 (bunkers at tidewater)	.65	.75
10-16 (cargo lots)	.65	.75
12-17 (tank cars)	.50	.75
10-17 (high sulfur)	.45	.65
San Joaquin Valley:		
10-18 (tank cars)	.50	.70
24 plus diesel, per bbl.	1.10	1.25
San Francisco:		
24 plus diesel, per bbl.	1.35	1.40
24 plus diesel (bunkers)	1.40	1.50
10-16 (bunkers)	.75	.80

GULF COAST—

No. 2 fuel	.03¼	.03½
43-47 diesel	.03¼	.03½
48-52 diesel	.03½	.03⅝
53-57 diesel	.03⅝	.03¾
58-and-above diesel	.03⅞	.04
Diesel bunkers		1.50
Bunker C (bulk cargoes)		.80
Bunker C (bunkers)		.80

NEW YORK (Bayonne, N. J.)—

27 plus gas oil		.042
28-30 diesel (lighterage 6¼c per bbl.)		1.70
28-30 diesel (tank cars)		.041
Bunker C (to ocean-going ships in N. Y. Harbor	1.15	1.25
Industrial fuel (tank cars)		.03875

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

200-210 D, 10-25		.18
150-160 D, 0-10		.13½
150-160 D, 10-25		.13
100-110 D, 0-10		.13
100-110 D, 10-25		.12½
Steam refined:		
600 dark green (untreated)		.07

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point		.14½
15 pour point		.13½
25 pour point	.12	.14
Steam refined:		
600	.07	.08
650	.08	.10
600 flash	.09	.11
630 flash	.11	.13

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.08
180-3		.08½
200-3		.08½
250-3		.10
280-3		.10½
280-4		.10
300-3½		.11
350-3½		.11½
400-3½		.12
500-3½		.12½
600-3½		.13
100-2½ paraffin oil, 10-25		.05¼
10-25 pour point:		
200-3		.08
250-3		.09½
280-3		.10
280-4		.09½

GULF COAST—

Pale oils:		
100-3	.05½	.05½
200-3	.07¼	.07¼
300-3	.07½	.07½
500-3½	.08¼	.08¼
750-3½	.08⅝	.08⅝
1,200-3½	.08⅝	.08⅝
2,000-4		.09
3,000-4		.10½
Red oils:		
200-5-6	.06⅞	.07
300-5-6	.07¼	.07½
500-5-6	.08	.08¼
750	.08⅜	.08½
1,200-5-6	.08½	.08⅝

CALIFORNIA (moving to dom. market)

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis., at 70° F., 3 color, 400-405 flash.		
Zero pour point		.22½
10 pour point		.21½
15 pour point		.20½
25 pour point	.19	.20
200 vis., at 70° F., 3 color:		
Zero pour point		.24½
10 pour point		.23½
15 pour point		.22½
25 pour point	.21	.22

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.02½	.03

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale		.02¾
124-126 (A.m.p.) w.c. scale		.02¾

NEW YORK—

Wax in bags fully refined:		
125-127 (A.m.p.) wax		.0500
128-130 (A.m.p.) wax	.0560	.0570
130-132 (A.m.p.) wax		.0585
133-135 (A.m.p.) wax		.0615
135-137 (A.m.p.) wax		.0640
Crude scale:		
124-126 (A.m.p.) w.s.	.02½	.02¾
124-126 (A.m.p.) y.s.	.02½	.02¾
Petrolatum in barrels, carload lots:		
Dark green	.02125	.02625
Amber	.02375	.02875
Extra amber	.02625	.03000
Lily white	.04375	.05125
Snow white	.05125	.06000
Cream	.03375	.04125

Export Prices

GASOLINE

GULF COAST—

U. S. Motor		.03⅝
60-62 400		.03⅞
61-63 390	.03⅞	.04
64-66 375	.03⅝	.04

LOS ANGELES—

U. S. Motor grades:

Above 69 octane	.05½	.05¾
65-69 octane	.05¼	.05½
60-65 octane	.04½	.05

KEROSENE

GULF COAST—

41-43 water white	.04	.04½

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbl.)—

Cylinder stocks:		
600 S.R. unfiltered	.15½	.16½
630 S.R. unfiltered	.16½	.17½
600 flash, S.R.	.17½	.18½
650 flash, S.R.	.20	.21
Bright stock:		
Light, 25 pour point	.20½	.21

NEUTRAL OIL

200-3 color		.27
150-3 color	.25	.25½

PARAFFIN WAX

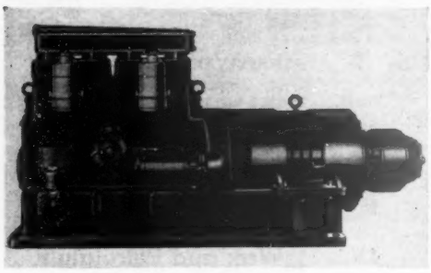
NEW YORK (prices per lb.)—

123-125 A.m.p.		.05600
125-127 A.m.p.		.05600
128-130 A.m.p.		.05850
133-135 A.m.p.		.06150
135-137 A.m.p.		.06400
Crude scale:		
124-126 w.s.	.02¾	.02¾
124-126 y.s.	.02¾	.02¾

EQUIPMENT PROGRESS...

Witte Announces Four-Cylinder Diesel-Electric Plant

The Witte Engine Works, Kansas City, Mo., has been a builder of internal-combustion engines for decades. In 1923 they started designing and testing diesel en-



gines as small as 3 hp. Their success in the small-diesel field created a demand for larger sizes, incorporating the same engineering features in design and construction. To fill this demand, Witte diesel engines are now made in 4 to 40-hp. sizes and Witte Dieselectric plants in 3 to 30 kva.

The 36-40-hp. four-cylinder Witte diesel engine is electrically started and has many features of construction hitherto confined to engines of 100 hp. and larger. Yet many parts are interchangeable with the 9-hp. single-cylinder vertical engine. It is of en bloc construction with replaceable wet-type cylinder liners. The drop-forged crankshaft is well balanced with liberal main-bearing area. Main bearings are heavy-duty babbitt-lined steel shells. Spiral gear-driven accessory shaft is mounted on Timken roller bearings, and all heavily stressed parts are of alloy steel. Pierce governor assures close governing, while built-in gear-driven water-circulating pump, thermostatic jacket-water control and water-cooled exhaust manifold guarantee ample cooling by radiator, tank, tower or marine pump.

The cylinder head contains the combustion chamber, intake and exhaust valves and the fuel-injection nozzle. Long life is assured by the use of silcrome steel valves, valve-seat inserts and replaceable valve guides. The cylinder head being light and of simple form, valve servicing and inspection of the piston is thus greatly facilitated. Pistons are of sufficient length and carry four compression rings and one oil ring. The rings are well spaced below the piston crown, thus preventing seizing of the upper rings from excess heat.

The crankcase is well ventilated with forced-feed lubrication to cam and crankshaft bearings and forced-flood lubrication to gears. Oil-bath air cleaners, fuel and oil filters are regular equipment. Flywheel, clutch, 30-kva. generator or marine gears may be attached to either end of the four-cylinder engine so they may be installed in matched "right" and "left" units.

Industrial Clinic Founded To Solve Paint Problems

The Industrial Paint Clinic, 43 East Ohio Street, a consultation service for the solution of industrial-maintenance paint problems has been founded in Chicago. The clinic has been established through the enterprise of Grover M. Hermann, president of the American-Marietta Co., Chicago, in recognition of the need for a clearing house of information on significant developments in the paint industry.

More than 100,000 requests for information have come to Mr. Hermann's company during his 27 years in business, many hundreds of them originating in the petroleum industry. In the past these problems, covering every conceivable circumstance in which paint is used, have been turned over to an already harassed scientific staff. Now such problems can be handled in the clinic with the conservation of much time and effort, for in the new laboratories it is possible to simulate nearly all known conditions of weather, climate, and industrial wear and tear.

An elaborate manual, the Maintenance Painting Handbook, has been prepared by the clinic and will be distributed gratis to industrialists and paint buyers.

TRADE LITERATURE

LINK-BELT CO., 307 N. Michigan Avenue, Chicago. —Folder No. 1872, describing two new higher-capacity vibrating screens for reconditioning rotary mud and giving complete specifications and dimensions for both individual and dual hook-up.

Superfinish for Hancock Valves

"Once again we have borrowed a page from the automotive industry in order to produce better valves," announces the Hancock Valve Division of Manning, Maxwell & Moore, Inc., Bridgeport, Conn. The makers claim that through the use of the revolutionary development, Superfinishing, the life of valve seats and disks in Hancock "500 Brinell" valves is increased twelvefold. It is stated by the manufacturers that Superfinishing produces a highly polished wearing surface by "honing" (actually rubbing and scrubbing with abrasives) which eliminates almost the last trace of friction.

It is also said that in numerous "breakdown tests" on valve-testing machines, the Superfinished valve seats and disks outlasted 12 times the same seats and disks that had not been been Superfinished.

DRESSER MFG. CO. ACQUIRES PACIFIC PUMP WORKS

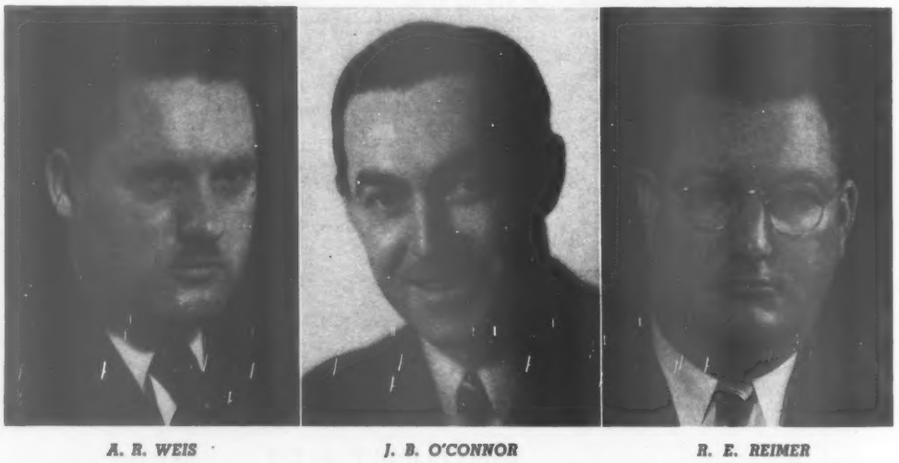
Of interest to the refining, producing and pipe-line divisions of the oil industry is the announcement by the Dresser Manufacturing Co. of their acquisition of the Pacific Pump Works, of Huntington Park, Calif. The Dresser Manufacturing Co. is well known throughout the oil industry, having been organized in 1880. It manufactures pipe couplings, sleeves and repair devices for the construction and maintenance of pipe lines. Head office and plant are located at Bradford, Pa.

Pacific Pump Works, established in Huntington Park in 1924, has become well known through their manufacture of various types of centrifugal pumps for refineries and boiler-feed water plants. They also produce turbine pumps for water wells and deep-well plunger pumps for oil-field production. Other subsidiaries of the Dresser organization include Clark Bros. Co., Inc., of Olean, N. Y., manufacturers of gas and diesel engines and compressors, and the Bryant Heater Co. of Cleveland, Ohio, manufacturers of gas heating and air-conditioning equipment.

The combined personnel of all organizations will run well over 1,500 people. Outside of changes announced in management personnel and directorate, the operations of the Pacific Pump Works will continue on the same basis with no variation of company policy.

J. B. O'Connor, vice president of Clark Bros. Co., Inc., will serve as chairman of the board of directors. A. R. Weis, formerly vice president of Pacific Pump, was elected president of the California company, and R. E. Reimer, treasurer of Dresser, has been named the secretary-treasurer. Directors include J. B. O'Connor, A. R. Weis, H. N. Mallon, C. P. Clark and R. E. Reimer, of the Dresser Manufacturing Co.

Mr. Weis, in commenting upon plans of the company for the future said, "It is our belief that this move is of benefit not only to the companies directly affected but to the industry which we serve as well. The Dresser company and Clark Bros. will now have a Pacific Coast plant and organization, while the Pacific Pump Works will benefit through plant and sales representation in the East on a much broader scale than was possible heretofore. The Pacific Pump Works will continue to be operated as a separate unit, but covering on the Pacific Coast a some-



A. R. WEIS *J. B. O'CONNOR* *R. E. REIMER*

what parallel field to that covered by the Dresser and Clark companies in the East and Middle West, the three companies will cooperate in sales, service and engineering. Our many customers throughout the United States and in foreign fields are assured of a more complete line of products to satisfactorily meet their requirements and of the strongest possible service organization."

R. E. Reimer, in commenting upon immediate plans of the Pacific Pump Works said, "While we are not in a position to make any definite announcement at this time, definite expansion of the Pacific Coast facilities is being considered. We believe from contacts we have already made with the oil industry at large that the consummation of arrangements as announced is welcomed by our customers." Mr. Reimer went on to point out that the new set-up will in no way affect the manufacturing or sales operation of the Pacific Pump Works in either California or the Mid-Continent fields as far as turbine or deep-well plunger pumps are concerned.

New Low-Pressure Gas Regulator Announced by General Controls

Claiming three big advantages, high capacity, close regulation and low cost, General Controls Co., Glendale, Calif., has announced its newest line, the V-300 series of low-pressure regulators, for use on domestic and

commercial gas appliances. These new, small, compact regulators are available in sizes from ⅜ to 1½ in. with standard outlet pressure sealed at 3½-in. water column, but with a minimum outlet pressure of 2-in. and a maximum of 5-in. water column.

All internal parts are resistant to corrosion for all natural and manufactured gases: ⅜ and ½-in. small regulator bodies are of sand-cast aluminum, larger-size bodies are of cast iron. Diaphragms are of best-grade leather, oil-treated for sensitivity and long life. Rugged single-seated-valve principle assures positive alignment and simplified control with a minimum of pressure drop. Each regulator is thoroughly tested and checked for setting, leakage, and lockup, then sealed at the desired pressure. A.G.A. approval has been obtained.

American Iron Makes Several Changes in Organization

American Iron & Machine Works Co. of Oklahoma City, Okla., and Houston, Tex., has announced several changes in its organization and in the location of several of its personnel.

B. E. FOX

M. G. McCOOL

M. G. (Mac) McCool, district manager for the American company in the West Texas-New Mexico territory for the past 5 years, has been appointed general sales manager of this organization with headquarters in Oklahoma City. Mr. McCool has spent several years with the major supply companies in various capacities. He also spent 2 years with Standard of Venezuela in South America in the purchasing and warehouse division, and has had several years actual field experience in both drilling and production activities.

B. E. Fox, purchasing agent and office manager for the company in Oklahoma City for the past several years, has been advanced to the position of district manager over Oklahoma, North Texas, Illinois, California, and Wyoming. He will also be in charge of export sales. Mr. Fox became associated with this company in 1925, in Tonkawa, Okla., and has spent his entire business career with them.

Varney S. Harlin, who has been in the engineering department of the American Iron & Machine Works Co. for the past 6 years in Oklahoma City, has been advanced to the position of chief engineer and head of development and experimental departments. Mr. Harlin, a graduate of Oklahoma A. & M. College, became associated with this company immediately after receiving his degree in engineering.

Harry E. Nelson, plant superintendent of the American Monahans, Tex., plant for the past 5 years, has been advanced to the position of district manager over the West Texas and New Mexico territory. Mr. Nelson likewise began with American in 1924 at Tonkawa. He has had a varied experience in this organization, is thoroughly familiar with American's products, and has had several years' experience in sales and engineering work.

L. D. (Jiggs) Murray, district sales manager of the company in Louisiana, has been advanced to the position of district manager of the Gulf Coast area. Mr. Murray will continue to headquarter in Houston. He has a varied experience in the oil industry, having spent several years with the Bovaird Supply Co. before becoming associated with American. He also had several years with the Haynes Drilling Co. in the drilling department and with other major drilling and production companies.

These recent changes in organization of the company do not affect R. E. Craine, who will continue as district manager of Kansas.

Miller Sand Pump Opens Salem, Ill., Office

S. John Smith, general manager of the Miller Sand Pump Co., Oklahoma City, Okla., has announced the opening by the company of a service branch and warehouse at Salem, Ill., located on Route 50. In addition to carrying complete stocks of Miller sand pumps and boilers assuring immediate delivery to the Illinois fields, a large rental stock of cable-tool drilling and fishing tools will be stocked. C. C. "Stormy" Guinn will be in charge of this store with J. Ed Ragan, Miller field representative.

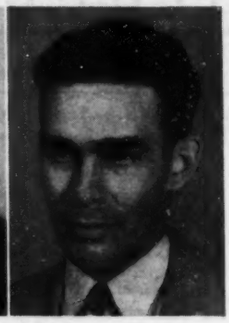
Marmon-Herrington Expands Plant Twice in 3 Months

Indicative of the rapidly growing popularity of Marmon-Herrington all-wheel-drive trucks and passenger vehicles for industrial, commercial and military usage are the greatly increased manufacturing facilities for these units which have become necessary. A building program, which doubled the capacity of the plant, has just been completed, and now the company is starting a further plant expansion of approximately equal magnitude. Additions to the already greatly enlarged truck and tractor assembly plants and to the office building as well as a new service building are now under construction. Starting from scratch less than 10 years ago, the company's plant site now comprises 16 acres of ground, with numerous buildings and private railroad facilities.

Mills and Baker Join Bethlehem Supply

Bethlehem Supply Co. of Tulsa has announced the appointment of Kenneth N. Mills as chief engineer of its manufacturing division. Mr. Mills was formerly

L. W. BAKER



KENNETH N. MILLS

chief engineer of the American Manufacturing Co. of Texas. He is a graduate of the Rice Institute at Houston, Tex. During his association with the petroleum industry, he has devoted considerable time to analytical studies of the problems encountered in oil-well pumping. His studies have consisted of theoretical studies of production problems and a correlation of these studies with practice. He has also made numerous photoelastic stress studies in welded structures.

Bethlehem also has announced the appointment of L. W. Baker as a sales representative in Tulsa to call upon the oil trade. Well known in Tulsa and in the oil industry, Mr. Baker has been in Tulsa since 1927, when he came here from Bridgeport, Ill., to join the staff of the First National Bank & Trust Co. Resigning his banking position in 1930, he became affiliated with the Lucey Products Co., later being named vice president of the company. He resigned his connection with the latter company on September 15 to join the sales force of the Bethlehem Supply Co.

BUSINESS NOTES

Micro-Westco, Inc., is pleased to announce the appointment of Warner Lewis Co., Tulsa, as distributor for Westco turbine-type pumps in the oil industry for the State of Oklahoma.

HERCULES ESTABLISHES FACTORY BRANCH IN ILLINOIS AREA

With the opening of a fully equipped oil-field sales and service branch at Salem, Ill., Hercules Motors Corp., of Canton, Ohio, makes available to oil-field operators in the Salem, Centralia, and Louden fields

of southern Illinois and closely adjacent fields in Indiana and Kentucky, ample stocks of engines and parts and engineering service.

The new branch is located right in the midst of "Supply Row" in Salem, at 701 South Broadway. Gasoline and diesel engines and power units in a wide range of sizes are carried in stock. Not only are power units available for all pumping requirements, from shallow wells to the deeper Devonian production, and for pipe-line service from the smallest centrifugal and rotary loading pumps up to the larger reciprocating pumps, but also units are available for rotary drilling rigs, well-servicing, and production machinery and rig-lighting equipment. Complete stocks of parts for all Hercules engines are carried and service is available 24 hours a day. A special feature is the availability of engine-replacement assemblies for popular-size models used in pumping and pipe-line service.

CLASSIFIED ADVERTISING . . .

Patent Attorneys

PATENTS — TRADE MARKS

All cases submitted given personal attention.

Form "Evidence of Conception" with instructions for use and "Schedule of Government and Attorney's Fees"—FREE.

LANCASTER, ALLWINE & ROMMEL
Patent Law Offices
418 Bowen Bldg., Washington, D. C.

J. PRESTON SWECKER
PATENT LAWYER
INFRINGEMENT LITIGATION
Patents, Searches, Opinions, Trade Marks
OFFICES:
911 Panhandle Bldg., Wichita Falls, Tex.
National Press Bldg., Washington, D. C.

CECIL L. WOOD
PATENT LAWYER
Patents, searches and opinions
Infringement practice
Experience in Oil Equipment
323-324 Insurance Bldg., Fort Worth, Tex.
212 Kellogg Building, Washington, D. C.

Leases and Drilling Blocks

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up.—Owners—Address Attorney, Box 1122, Little Rock, Ark.

SPECIALIZED Geophysical investigations conducted for petroleum promise. In touch with many opportunities to and for development of drilling blocks. P. O. Box 364, Fort Worth, Texas.

FOR SALE Oil and gas leases and small production located in Kentucky shallow field, also tracts of proven Fluorspar and zinc deposits. Reports on request. W. P. HARLEY, Bowling Green, Kentucky.

CRANE-WARD County 20 ac. cheap in fee, under Magnolia lease. J. G. SMITH, 215 Littlefield Bldg., Austin, Texas.

NEW MEXICO
Oil and Gas Leases and Royalties.
ROY G. BARTON, Hobbs, N. M.

EAST TEXAS Trinity sand wildcat starting. Close in leases afford you ten to fifty for one bets next sixty days. E. CROFT, PROCTOR, TEXAS.

WILL SELL OR LEASE
All oil, gas, coal and other mineral rights in property known as Eagle Coal Co.; 12,000 acres; located at Stearns, McCreary Co., Kentucky. Railroad runs through property. Address: Harry A. Dempsey, oil and gas producer, 518 Leader Bldg., Cleveland, Ohio.

WANTED. Capital to develop Oil and Gas lease in producing area of Russell County, Kansas. Write Box 302, Benkelman, Nebraska.

CASH paid for producing wells. Will help finance drlg. shal. gas land. Describe full, or no att'n paid. Box 93, Tulsa, Okla.

ILLINOIS' ONLY OIL REPORT
Estab., June 1937. Every detail every test Ill. and Ind. each Tuesday and Friday. C. I. O'Neill, Effingham, Ill. Box 394.

NEW MEXICO
STATE OIL AND GAS LEASES
NEW block of leases located in San Juan Co., where pools have been opened which produce the highest gravity crude known in the World today. Rental 15c per acre. Write for information. Buy direct and save those dollars. No middle man to pay; no salesman to bother you.
HARRY S. WRIGHT
New Mexico State Lessee
Wright Bldg., Farmington, New Mexico.

WILL lease to right party 7/8 of gas and oil from following tracts in Cass County, near Edwardsburg, Michigan. All 2 to 4 miles of producing wells, 23, 40, and 7 acres 10 miles northeast of Notre Dame; 17 and 80 acres 11 miles northeast of Notre Dame. L. E. Pearson Lumber Company, Box 516, South Bend, Indiana.

Leases and Drilling Blocks

CRANE CO., oil possibilities, cheap fee land, 3 mi. E Ward Gulf-Western drilling. J. G. SMITH, 215 Littlefield Building, Austin, Texas.

SOUTH Louisiana Producing Royalties: Wildcat leases and shooting blocks, inquiries invited. John Derryberry, Box 304, DeRidder, La.

U. S. OIL RESERVE LEASES. Regulations permit limited filings. Have filed our quota against our developments but have several blocks unfiled on which we had expense 10 cents per acre in abstracting, geologizing etc. and will arrange filings for those qualified and who will protect. Address Box K-903, The Oil and Gas Journal, Tulsa, Okla.

WANT 100% PROVEN LEASE, 1500 ft. or less. Reliable Oklahoma party will drill offset or producing lease. Write Box A-102, The Oil and Gas Journal, Tulsa, Okla.

7 SECTIONS twenty miles northwest of Toyah, Texas, $1 acre, surrounding lands leased to Major Oil Companies. M. Bransford, 2070 E. Washington St., Pasadena, Calif.

FOR lease proven 160 acres in the Slaughter field, J. J. Stallings, 1005 Oak St., Sweetwater, Tex.

OWNER offers 200 acres, Linn County, Kansas, virgin shallow production; 14 wells equipped for water pressuring; core laboratories test showed better than 8000 barrels per acre; additional leases available. George P. Lilley, Baker, Oregon.

Legal Blanks

BURKHART'S legal blanks and general forms serving Mid-Cont. oil field since 1908—Okla. Kans. N. Mex. Tex. Ala. Ark. Fla. Ga. Ill. Ind. Ky. La. Mich. Miss. Mo. Neb. N. Dak. Tenn, Wyo. Free catalog samples on request. Burkhart Ptg. & Sta. Co. 115 S. Cinn. Tulsa, Oklahoma.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Mailing Lists

ROYALTY owners, Oil investors, Unit holders, Stockholders in Oil and Royalty Companies. Personnel lists of every branch of oil industry. All by States. We buy lists. New catalogues ready. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Oklahoma.

Financing

JOHN MORRIS, Box 5411, Philadelphia, studied records 5000 financial houses. Found only 191 buy new issues. $4.00.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo

WE MAINTAIN A MARKET FOR REGISTERED DEALERS IN ALL FORMS OF OIL INVESTMENTS
FIRST DEPENDABLE OIL CORP.
522 Fifth Ave., New York, N. Y.

ROYALTIES FOR SALE
24 acres or more $100 per acre, 1 mi. production, Noble, Ill. field. Address Box A-107, The Oil and Gas Journal, Tulsa, Oklahoma.

Ranches—Farm Lands

225,000-A. So. Colo. cattle-sheep ranch, ⅛ mountains, ⅛ valley, no improvements, 2700-A irrigated vega grass, 6 streams, 2500-A lake. $3. Howard Ingram, Perrine Bldg., Oklahoma City, Okla.

Wanted

INFORMATION as to the use of Bentonite in oil well drilling fifteen to twenty years ago. Box K-900, The Oil and Gas Journal, Tulsa, Oklahoma.

Business Opportunities

OPPORTUNITY to invest five to ten thousand dollars with operating company owning two casinghead gas plants wanting to install profitable Butane plant Very attractive proposition. Box K-903 The Oil and Gas Journal, Tulsa, Okla.

Situations Wanted

REFINERY EXECUTIVE thoroughly trained and experienced in design construction and operation of refineries and the manufacture of all products. Efficient, energetic, diplomatic. Desires permanent connection or design construction and operation on partnership basis. Now employed. Box K-675, The Oil and Gas Journal, Tulsa, Oklahoma.

REFINERY TECHNICIAN AND SUPERINTENDENT. Experienced in manufacture of oils, waxes, asphalts, greases, etc., also in design and construction of plants for manufacture of high melting point waxes. Thirteen years' experience. Reply to Box K-780, The Oil and Gas Journal, Tulsa, Okla.

EXPERIENCED chemical engineer now employed desires position with progressive firm. B.S. degree in engineering. 12 years practical experience processing, management and refining operations. Qualified refinery engineer and Supt. Can furnish references. Address Box K-672, The Oil and Gas Journal, Tulsa, Okla.

MANUFACTURERS REPRESENTATIVE with large following in Mid-Continent wishes additional lines. Address Box K-902, The Oil and Gas Journal, Tulsa, Okla.

YOUNG man wants to start at bottom and study selling oil field supplies or equipment, Box K-800, The Oil and Gas Journal, Tulsa, Oklahoma.

MASTER'S DEGREE and experience. Training in business administration, foreign economics, geology, foreign language. Box A-105, The Oil and Gas Journal, Tulsa, Oklahoma.

Help Wanted

CHEMICAL OR PETROLEUM ENGINEER with experience as crude oil emulsion treater. Location: Southwest. State age, education, experience and salary required. Address Box A-104, The Oil and Gas Journal, Tulsa, Oklahoma.

SALESMAN by Seamless Tube and Pipe mill. 30 years or younger. Technical college training preferred with some steel product sales experience. Supply full particulars, experience and training by letter in own hand writing, with recent photograph, to Box K-794, The Oil and Gas Journal, Tulsa, Oklahoma.

WELDING engineer, graduate metallurgist with experience in welding practice. Battelle Memorial Institute, Columbus, Ohio.

ANALYST — GAS—PETROLEUM LAB, experienced in Podbielniak, Orsat and combustion work. Knowledge other Petroleum tests desirable but not essential. Eastern location. Box A-106, The Oil and Gas Journal, Tulsa, Okla.

CHEMICAL ENGINEER experienced in refinery engineering, including heat transfer and rectification calculations and high pressure process design. Location: Southwest. State age, education, experience, and salary expected. Address Box A-103, The Oil and Gas Journal, Tulsa, Okla.

VACANCY for an experienced instrument man in a mid-west refinery. Electrical engineer preferred. State experience and education in application.
BOX A-101
The Oil and Gas Journal, Tulsa, Okla.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CAPITAL SEEKERS
Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

For Sale—Maps

R. B. ROBINSON MAPS
Jackson, Miss. 3-Hart Bldg., Across Street from Heidelberg Hotel. Ownership maps All Over Mississippi.

1940 OIL AND GAS FIELD MAP
Texas, Eastern New M. Price $1.00.
Wildcat Map $3.00 Published monthly.
ZINGERY OIL MAP CO., Fort Worth, Tex

NEW MAP of Texas, Oklahoma, Arkansas; most of New Mexico and Louisiana. 42 x 50. Shows Counties, fields, names, salt domes and Major Geological structures. AUTHENTIC. $3.00 Postpaid. Oil City Map Co., Longview, Texas.

CLASSIFIED ADVERTISING RATES

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgment is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	$1.05	$1.80	$2.55	$3.30	7 Lines	$2.45	$4.20	$5.95	$7.70
4 Lines	1.40	2.40	3.40	4.40	8 Lines	2.80	4.80	6.80	8.80
5 Lines	1.75	3.00	4.25	5.50	9 Lines	3.15	5.40	7.65	9.90
6 Lines	2.10	3.60	5.10	6.60	10 Lines	3.50	6.00	8.50	11.00

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	1 time	$5.00
1 Inch	13 times	4.50 per inch
1 Inch	26 times	4.00 per inch
1 Inch	52 times	3.50 per inch

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma